



Department
for Education

Identifying and supporting the needs of autistic children and young people: a rapid evidence review

Research report

September 2025

**Authors: Catherine Antalek, Susana
Castro-Kemp, Fiona Dixon, and Anna
Melissa Romualdez – University
College London**



Government
Social Research

Disclaimer

This research does not constitute an endorsement by the Department for Education of any of the approaches described. It does not reflect current Government policy, nor does it indicate future policy direction. Materials, resources, websites, and commercially developed programmes or products mentioned in this report are included solely because they were identified and reviewed as part of the rapid evidence assessment. Other tools or products with similar functions may exist and their absence from this report should not be interpreted as a reflection of their effectiveness. Reference to specific named or third-party products and materials should not be seen as an endorsement by either the authors or the Department for Education of their use, or of any particular company or its offerings.

Contents

Disclaimer	1
List of tables	4
Executive summary	5
Background	5
Approach	5
Key findings	5
Identification	5
Support	6
Conclusions	7
Introduction	8
Aims	9
Methods	11
Identification and assessment of need	13
Identification in the early years	19
Tools for identifying the needs of autistic children in the early years summary	21
Language and communication skills	21
Measuring social and communication skills summary	23
Behaviour assessment	23
Measuring behaviour summary	25
Sensory processing assessment	25
Psychosocial and mental health assessments	26
Measuring mental health and psychosocial difficulties summary	27
Identification and assessment summary	27
Support and intervention	29
Universal support: High quality teaching and classroom support	30
Instructional strategies	30
Effective universal instructional strategies for autistic children and young people summary	33
Classroom environment	33

Targeted support for autistic children and young people	34
Reading instruction	35
Targeted approaches to reading instruction summary	37
Reading comprehension	37
Targeted strategies to support reading comprehension summary	38
Writing interventions	38
Targeted strategies to support writing summary	40
STEM (Science, technology, engineering and math) interventions	40
Targeted strategies to support STEM skills summary	42
Augmentative and Alternative Communication	42
Augmented and Alternative Communication summary	43
Support and intervention summary	44
Conclusions	45
Appendices	46
Appendix A: Search terms (PICOS criteria)	46
References	50

List of tables

Table 1. Number of identified studies informing each strand	11
Table 2. Definitions of identification terms in the educational and clinical context	14
Table 3. Specialists and healthcare providers who may be involved in collaboration	17

Executive summary

Background

In the SEND Code of Practice (DfE, 2015), autism falls under the broad category of Communication and Interaction needs. However, the code also states that autistic children and young people “may have needs that cut across all areas” of SEND (DfE, 2015, p.85).

Autistic children may experience sensory processing differences (i.e. difficulties in how sensory information is registered, interpreted, and responded to), challenges with social interactions, including verbal language and interpreting non-verbal cues, as well as anxiety, mental health difficulties, and “meltdown” or “shutdown” responses, all of which can impact academic engagement and educational outcomes (Robertson & Baron-Cohen, 2017). Accepting the breadth and complexity of these needs, this rapid evidence assessment (REA) will examine approaches for identifying and supporting the needs of autistic children and young people.

Approach

The evidence was gathered through a rapid evidence assessment (REA), with a literature search designed to identify key findings on identifying and supporting autistic children and young people. The search focused on systematic reviews and meta-analyses examining effective tools and strategies for identification and support in mainstream settings, as well as reviews assessing collaborative practices between families, schools, and healthcare providers or specialists.

Key findings

Identification

The findings from this review suggest that current evidence for effective identification of autism and educational needs align with [National Institute for Health and Care Excellence \(NICE\) guidelines](#) and supports a multidisciplinary, collaborative approach to autism identification that includes input from families, children, and professionals across sectors. While there are a few strategies that mainstream educators can use to identify and screen for difficulties, it is often best to interpret the results of screeners and assessments (formal and informal) with the help of various specialists.

Further, the evidence supporting the use of identification strategies remains limited, with a need for larger-scale studies employing randomised controlled trials. However, a few useful techniques were highlighted in this REA. Tools such as the Strengths and Difficulties Questionnaire, Social Communication Questionnaire, and participation measures (e.g., Children's Participation Questionnaire) can provide valuable insight, although many remain in early development stages and lack strong evidence of reliability or classroom suitability. Importantly, these tools may not fully capture individualised traits like sensory sensitivities or restricted interests. Digital tools also have an emerging evidence base, and may be particularly useful for wider accessibility and use in low-resource settings, but require further validation through research.

It may be beneficial for educators to adopt a holistic perspective, recognising the interplay of cognitive, emotional, motor, and environmental factors. Unsurprisingly, the most effective approach is to carry out a comprehensive formal assessment drawing together multiple points of data (e.g., observation, questionnaires, standardised assessments) and from a variety of informants (parents, teachers, the children and young people themselves). Nonetheless, mainstream educators play a crucial role in the early stages of identification, where their timely and accurate observations can significantly shape subsequent assessment and support.

Support

High-quality teaching for autistic children and young people is grounded in inclusive classroom practice, structured instructional strategies, and supportive environments that promote meaningful participation in learning. There are a range of instructional strategies shown to be effective for autistic children and young people. Approaches such as Discrete Trial Training (DTT), Direct Instruction, and Explicit Instruction are effective in developing academic and functional skills by breaking tasks into manageable steps, using clear prompts, and providing positive reinforcement. Techniques like response prompting, time delay, and the use of visual supports, such as graphic organisers, task cards, and visual schedules, further enhance comprehension and independence. Precision teaching has also shown promise in building specific skills, including reading, storytelling, and emotion identification.

Effective teaching also involves using student interests to engage learning and reinforcing effort through praise and rewards, which can be gradually faded to support intrinsic motivation. Establishing consistent routines and structured environments reduces uncertainty and supports regulation, particularly important for pupils who may struggle with transitions or sensory sensitivities. Sensory-friendly classrooms that reduce overwhelming stimuli and provide predictable, calming environments are essential for enabling focus and learning.

Many of these same approaches can be used in targeted interventions for reading, writing, maths, science, and general achievement. The children and young people should be consulted where targeted intervention is planned to account for their individual needs, learning goals, and preferences. Materials and strategies that may need modification, should be produced in a timely manner so that autistic children and young people have equitable access to learning materials in-line with their peers.

Conclusions

Overall, there is a growing body of evidence on identifying and supporting autistic children and young people from which we can draw some preliminary conclusions about best practices for mainstream educators. However, many studies are still very small-scale or low in quality which limit the degree to which we can generalise some of this evidence. Inconsistencies in study methodologies and outcome reporting highlight the need for more rigorous research in terms of identification and support of needs for autistic children and young people. Further research is needed to validate these strategies with a representative sample of participants, and also to evaluate other tools of identification and support that educators without specialist qualifications can use in mainstream settings.

Introduction

Autism spectrum disorder (ASD) is a lifelong neurodevelopmental condition that affects social communication and interaction, together with patterns of repetitive, restricted and stereotyped interests and activities (APA, 2022). Autism is a spectrum condition which affects people in different ways and to varying degrees depending on interaction with environment factors. Difficulties typically emerge in early childhood, are pervasive and enduring, resulting in challenges across multiple aspects of daily life. The term ‘disorder’ reflects an outdated medical model of disability, and many autistic people, parents and carers, and researchers alike reject the word ‘disorder’ (Cook, 2022). Therefore, throughout this review, “autism” will be used in place of “ASD” to be in keeping with the neurodiversity-affirming approach. Additionally, recent studies found that autistic people and other close stakeholders prefer identity-first language, particularly in the UK (see Kenny et al., 2016). Therefore, we will also adopt this language for the current rapid evidence assessment (REA).

In England, the prevalence of autism has been increasing. According to the Department for Education’s data (DfE, 2025) for the academic year 2024/25, 9.7% of pupils receiving SEN support have autism as their primary need, up from 4.7% in 2015/16. Autism is the most common type of need among pupils with an Education, Health and Care (EHC) plan, accounting for 33.6% of all cases. This represents a significant portion of the student population requiring additional support.

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) published by the American Psychiatric Association (APA) serves as the authoritative guide for diagnosing mental health conditions. The DSM-V classifies autism as a neurodevelopmental disorder and specifies two main criteria for autism diagnosis. The first is persistent difficulties in social communication (e.g., social-emotional reciprocity, nonverbal communication, and the ability to form and maintain relationships). Autistic people may find it difficult to communicate or understand others, particularly tone, taking things literally, and not understanding abstract concepts. Social communication difficulties are often early indicators of autism. For example, difficulties in joint attention (i.e., the ability to show interest or share a focus of attention and follow gaze) is generally a strong indicator of autism. There may be inappropriate responses or misinterpretations in communication and a limited use of social smiles or gestures. The second criteria are restrictive and repetitive patterns of behaviour (e.g., such as repetitive movements or speech, insistence on sameness, intense fixated interests, or unusual responses to sensory input).

The profile of autism is highly heterogeneous, with the type and severity of needs varying considerably between individuals. For example, some autistic children and young people may have difficulties with verbal communication, while others may have good oral communication and language skills, but poor social communication. Further, many

conditions can co-occur with autism, such as epilepsy, speech and language difficulties, dyslexia or attention deficit hyperactivity disorder (ADHD) (e.g., Tager-Flusberg & Dominick, 2011). Autistic children and young people may also have mental health difficulties. For example, 50-70% of autistic people also present with comorbid ADHD and up to 84% of autistic individuals may suffer from anxiety (White et al., 2009). Thus, it is necessary to understand the different strengths and challenges faced by individual autistic learners to appropriately support their needs.

It is also important to point out that our understanding of autism has changed with the development of research. Due to the challenges in reliably distinguishing between autism, Asperger's syndrome, and Pervasive Developmental Disorder (PDD), and concerns about the usefulness of these separate categories, the latest edition of the DSM (American Psychiatric Association, 2013) has removed Asperger's syndrome and PDD, instead conceptualising autism as a spectrum. In addition, the requirement for speech delay has also been eliminated; instead, difficulties in reciprocal conversation are recognised as a potential indicator of impaired social-emotional reciprocity. The criteria for stereotyped behaviours have been expanded to include hyper- or hypo-reactivity to sensory input. As with earlier definitions, onset must occur in early childhood, and symptoms must be severe enough to impair daily functioning. While our REA is designed to ensure findings are relevant and meaningful, it is important to note that some of the language used in the original sources may be outdated as some research included in this REA were published prior to the current DSM update. Some examples are the use of "functioning" (high-functioning, low-functioning) labels, severity labels (including mild, profound, severe, moderate), and Asperger's, all of which are now outdated. While we aim to accurately report findings, we will also highlight instances where language or perspectives may be outdated.

Aims

The goal of this REA is to synthesise evidence-based strategies in the identification, support, and collaborative practices available to mainstream educators in supporting autistic children and young people. This goal is guided by the following research questions:

Identification:

- Which formal and informal methods and measurement tools are available to practitioners to identify educational needs associated with autism within diverse classroom settings?
 - For which ages or age ranges can these tools be used?

- What are the performance parameters of these measurement tools (e.g., reliability/validity/specificity)?
- How can these tools be used to guide decisions regarding the provision of universal, targeted or specialist support?

Support:

- What are the most effective universal and targeted strategies, approaches, or adaptations for supporting autistic children and young people to improve educational outcomes?
 - What is the most appropriate level of delivery (universal or targeted or specialist) for each of these interventions?
 - What specific age groups are targeted by these interventions?
- What types of approaches/interventions do autistic children and young people respond best to?

Working with others:

- What components and characteristics foster effective collaboration between teachers, specialists, and parents/caregivers in the identification and support for autistic children and young people, and how can clear role boundaries and knowledge-sharing frameworks support this process?
- What examples are there of different models of collaboration between the multidisciplinary team?

Methods

To address these research questions, a Rapid Evidence Assessment (REA) was conducted following Cochrane rapid review guidance (Garritty et al., 2024). This REA followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement when selecting relevant articles.

We conducted a targeted search of two academic databases (i.e., Scopus: PsychINFO and EBSCO: ERIC) as well as grey literature using specific keywords related to the research questions (see [Appendix A: Search terms](#)). We identified systematic reviews and meta-analyses published in English between 2014 and 2024, focusing on children and young people aged 0-25 with identified autism in mainstream educational settings. Included studies evaluated identification, support, or collaborative practices that are feasible in UK classrooms, excluding medical, home-based, or highly resource-dependent interventions (e.g. beyond what is typically available in a mainstream classroom such as animals, robotics and virtual reality). Identification tools had to be usable by mainstream staff (not clinicians), and SEND status were independently verified through diagnosis, EHC plan, or standardised measures. Studies relying solely on teacher judgement were excluded. Studies reporting measurable educational attainment outcomes or communication and language outcomes were included (i.e., excluding behavioural, social or emotional outcomes).

Titles and abstracts were initially screened for relevance by trained members of the team, followed by full-text review, resulting in the inclusion of 89 studies in the final review, with 24 studies on identification and assessment, and 65 studies on support and intervention (see Table 1). Given the central role of collaboration across both the identification and intervention processes, this strand is not presented as a standalone section. Instead, within the identification and support sections, we highlight where collaborative practices are necessary and effective. Additionally, as many studies identified for inclusion relate to collaborative practices in general SEND provision or across different categories of need, a breakdown of studies specific to Autism is not included here, with collaborative practices across the categories of SEND addressed in the [Cross-Cutting Themes Report](#).

Table 1. Number of identified studies informing each strand

Strand	Number of studies included
Identification and assessment	24
Support and intervention	65
Total	89

Data from each study were then extracted by trained members of the team. We extracted descriptive information regarding the characteristics of each study as well as information

about identification and assessment tools and support strategies from the included paper(s) where available.

Our search efforts focused on high-quality and relevant research, and prioritised peer-reviewed studies with robust methodologies. All studies identified in the final sample are either systematic reviews or meta-analyses. We used the Assessing the Methodology Quality of Systematic Reviews tool 2 (AMSTAR2) (Shea et al., 2017) to evaluate the quality of these studies. Findings suggest that the evidence base was mixed according to this tool. Most studies were rated as demonstrating high or moderate confidence in the results, with some rated as low due to a 'critical flaw' (detailed in our [Technical Report](#)). The typical critical flaw was that many studies did not conduct a formal risk of bias assessment using a recognised tool (e.g., ROBINS-I, Cochrane Risk of Bias).

For a full account of our methodology, including search terms, inclusion, and exclusion criteria, PRISMA flow diagram, and extraction variables, and quality appraisal, see the [Technical Report](#).

Identification and assessment of need

The aim of this section is to review the studies from our search that focused on identification and assessment strategies suitable for use by mainstream education professionals in identifying the needs of autistic children. These approaches are not used to diagnose autism but can help teachers and school staff to recognise students' strengths and challenges, guide decisions about support, or highlight cases where referral for specialist assessment may be warranted.

In line with the SEND Code of Practice (DfE, 2015), the role of subject and class teachers is to support the early recognition of students who may be experiencing difficulties, particularly those affecting educational progress. Where concerns are identified, these should be discussed with the school's Special Educational Needs Coordinator (SENCo) and the child's family to determine appropriate next steps, including referral and formal assessment where necessary.

While many screening and assessment tools may be effective for identification and needs-based assessment, they should be used with caution by mainstream educators who do not hold specialist qualifications. This is because such tools are underpinned by psychometric principles (e.g., reliability, validity, and standardisation), which determine how results should be interpreted and used. Without specific training in these areas, it may be difficult to determine how scores compare to typically developing populations, whether they represent meaningful results, or what it means when scores fall within clinical ranges. In practice, this ambiguity places greater reliance on professional judgment, which can lead to variability in how results are interpreted, particularly among assessors with less experience or with limited training. While educators play a vital role in completing these tools as informants, accurate interpretation should typically involve an individual with specialist training. Although the strategies outlined in this section can be useful for planning interventions or flagging potential concerns, they should not be used for labelling or diagnosis. Rather these tools should be used to identify critical areas of need that may impact a student's academic performance.

The purpose of identification is to verify the existence of an educational need, while assessment aims to characterise the nature and extent of the child's difficulties in terms of differing skills (e.g., cognitive, language, literacy) (McCauley, 2001). The terms 'identification', 'screening', 'assessment', and 'profiling' are often used inconsistently across research, policy, and practice and can have different meanings in relation to educational versus clinical context. For example, the term 'screening' in an educational context typically refers to the process by which a tool or a strategy is used to flag potential needs in a population (e.g., whole-school or whole-class) or of specific children who may be at risk to provide timely support or targeted interventions in educational settings. In contrast, screening for clinical purposes is typically carried out by health or mental health professionals using standardised tools to determine whether a child may

meet criteria for a specific diagnosis, such as Autism, with the goal of planning for further assessment. However, some processes can overlap. For example, an observation checklist of social communication behaviours could be used for identification purposes to flag possible social-communication difficulties in the classroom, or it could form part of a broader multi-disciplinary diagnostic assessment for autism or be used to monitor change following a social skills intervention. For clarity throughout this document, we define each term within an educational context. Definitions of terms are provided in Table 2.

Table 2. Definitions of identification terms in the educational and clinical context

Term	Educational use	Clinical use
Needs-based identification	The process of recognising that a child may have additional needs (whether they do or do not have a diagnosis), often based on parental or child concern, observations, or professional judgement. However, this process can also include informal assessments. Informal assessments are flexible methods of gathering data to identify areas of need, guide interventions and monitor progress. These tools include checklists, questionnaires, or more structured assessments (e.g., listening comprehension, reading fluency).	Not a formal clinical term; overlaps with early signs that may prompt diagnostic referral but is not sufficient for diagnosis.
Screening	A brief, tool or procedure used to flag or identify potential concerns across a population. In educational contexts, the goal is to flag potential needs early so that timely support or targeted interventions can be put in place within the school setting. However, given that screeners are typically quick to administer and usually measure only a specific area of concern, their results should be interpreted with caution.	Tools used to determine whether further diagnostic assessment is warranted, often as a first step in a medical or psychological evaluation pathway. Typically, these tools should be administered by a trained specialist.

Term	Educational use	Clinical use
Assessment	<p>Refers to a systematic structured process of data gathering from standardised tools to understand individual strengths and needs in order to plan intervention or monitor progress. For educational purposes, these can be informal or formal assessments. Assessment should be an ongoing process to monitor progress.</p> <p>Formal assessments are structured, standardised tools used to evaluate a student's performance against national or normative standards. These include GCSEs and A-levels but also standardised assessments of literacy or other types of skills. Formal assessments sometimes require input from specialists to administer and/or interpret results.</p>	<p>A systematic and structured process of data collection for diagnostic purposes. Assessment is conducted by specialists (e.g., speech and language therapists) and involves standardised diagnostic tools to determine specific conditions or developmental profiles.</p>
Profiling	<p>A holistic summary of a child's functioning, strengths, and areas of difficulty, often used to guide provision. Includes data from multiple informants and through multiple methods.</p>	<p>Less commonly used as a standalone concept; elements of profiling are embedded in comprehensive diagnostic assessments that explore functional impact across domains.</p>

The pathway to identification and diagnosis of autism is often more clinically oriented than the identification of some other types of SEND (e.g., dyslexia). It is typically initiated through medical channels where children and young people are referred to healthcare providers, and a formal diagnosis is given, requiring collaboration from a multidisciplinary team. Here, concerns may first be raised by parents, teachers, or healthcare professionals who notice signs such as difficulties with various forms of expression, communication, behaviour, or social interaction.

Research indicates that children can be reliably diagnosed with autism as early as 2 years of age (e.g., Gurthie et al 2013; Lord et al., 2006; Stone et al., 1999). Early developmental concerns for a pre-school aged child should be initially referred to health

care providers. For example, delayed speech is a prominent early indicator that parents frequently notice, often prompting them to raise concerns with their primary care physician. Children under the age of three years who show possible regression in language or social skills should be referred promptly for an autism assessment (Yates & Le Couteur, 2016). School-aged children may have a broader range of symptoms and thus the referral point may be more diverse (e.g., coming from parents and carers or from educational professionals).

Identifying autism in children can be challenging due to several factors, including wide variation in how symptoms present, differences in severity, overlap with other conditions, and variability in when symptoms first appear. Some people remain undiagnosed into adulthood or throughout their whole lives. Further, it has long been considered that there is a sex discrepancy in the prevalence of autism, with a ratio of 4:1, in favour of males (Baird et al., 2006; DfE, 2024; Rivet & Matson, 2011). However, some literature suggests that the actual ratio of autism diagnoses is closer to 2:1 (Dworzynski et al., 2012) and other studies report equal rates of prevalence between males and females (Matheis et al., 2019). This suggests that autistic girls may be under-recognised. While the reasons for this are not clear, a few reasons for this have been proposed including genetic and neurobiological differences (Jacquemont et al., 2014), bias in diagnostic criteria (e.g., diagnostic criteria may be based more on male presentations) (Lai et al., 2015), and the possible higher prevalence of camouflaging or masking of autistic traits in females (Hull et al., 2020).

As a result, the diagnostic process often follows a two-step approach. First, there is some 'surveillance' or ongoing monitoring of behaviours followed by a more formal screening process using standardised tools to identify children who may be at risk. Second, if concerns remain after screening, a more in-depth assessment is carried out using diagnostic tools that are more detailed and often require input from a multidisciplinary team of professionals. While parents and teachers are important informants in the screening and diagnostic process, most assessment tools used in this process are for clinical use and will require specialist training to administer and interpret the results.

Two-step approach to diagnosing autism summary

1. Surveillance and screening
2. In-depth formal assessment

A formal diagnosis of autism can be useful to guide support and intervention practices in educational settings. Early identification of, and intervention for, autism has also been linked to improved functioning and wellbeing of children, parents, and the wider family (Estes et al., 2019). In the UK, the National Institute for Health and Care Excellence (NICE) guidance on the assessment and diagnosis of autism recommends that children

and young people with suspected autism should be referred to a local multidisciplinary autism team, which can offer specialist advice and support in assessing and understanding the needs of both the individual and their family (NICE, 2018). This team should include a paediatrician and/or child and adolescent psychiatrist, a speech and language therapist, and a clinical or educational psychologist.

The assessment may include a developmental history (usually taken from parents/carers), direct observation of the child (e.g., using observation schedules), speech, language, and communication or cognitive assessment, and school or nursery reports. Ongoing support should also involve multidisciplinary collaboration, bringing together health and education professionals to coordinate care and ensure that adaptations, equipment, and tailored support are provided in both educational and home settings. Due to its grounding in clinical assessment and medical terminology, this route is generally more medicalised than pathways for many other types of special educational needs. See Table 3 for a list of specialists and healthcare professionals who may be involved in the identification and support processes for autistic children and young people.

Table 3. Specialists and healthcare providers who may be involved in collaboration

Specialist	Role
General Practitioner (GP)	First point of contact for families; makes referrals to specialist services.
Health Visitor	May identify early developmental concerns during routine checks in early childhood.
Community Paediatrician	Leads or participates in developmental assessments; takes detailed medical/developmental history.
Child Psychiatrist	Assesses for autism and co-occurring mental health or neurodevelopmental conditions.
Clinical Psychologist	Assesses behaviour, cognition, and emotional functioning; may administer diagnostic tools like ADOS.
Educational Psychologist	Provides insights from school-based assessments; contributes to understanding educational needs.
Speech and Language Therapist (SaLT)	Assesses communication, language development, and social interaction skills.
Occupational Therapist (OT)	Evaluates sensory processing, motor coordination, and functional independence.
Specialist Autism Nurse or Keyworker	Supports families through the diagnostic process and coordinates between services.

Specialist	Role
School SENCo or Teacher	Provides observational reports and educational context; may flag concerns to parents/GP.
Social Worker (if involved)	Contributes family background or safeguarding information where relevant.
Multidisciplinary Team (MDT) Coordinator	Ensures all assessments and reports are brought together for a final diagnostic decision.

The International Classification of Functioning, Disability and Health (ICF) is a framework developed by the World Health Organisation (WHO) that provides a comprehensive and standardised way of understanding health conditions, disabilities, and their impact on daily life. The ICF is particularly useful in the assessment and identification of autism in children as it provides a holistic approach, considering not only the medical diagnosis but also the functional abilities, activity limitations, and participation restrictions a child may experience in various contexts such as school, home, and community settings. Typically, both clinical and functional assessments are used to inform tailored support programmes and may feed directly into the process of obtaining an EHC plan.

The ICF explicitly includes activities of daily living (ADLs) and activities and participation as a key part of its framework. ADLs are typically assessed in the process of identification and diagnosis. Assessment of capacity in ADL should comprise a representative set of items from all three domains: 'self-care and self-maintenance', 'productivity and schoolwork' and 'leisure and play' (Sugden, 2006). Activities and participation are also often assessed. These include barriers to participation in different contexts including in educational environments. Insight into ADLs and activities and participation are essential for diagnosis and treatment planning.

In general, identification and assessment of additional needs should be a collaborative effort with a multidisciplinary team. Although our REA identified relatively few studies focused on non-clinical methods of identification and assessment of needs, it highlighted several practical strategies that educators can use to help recognise areas of need and support autistic children in educational settings. The studies identified in our search span a range of assessment areas, including tools for early years identification, social and communication skills, behavioural assessments, sensory processing, and psychosocial and mental health evaluation. Educators can use a combination of structured tools and observational strategies to identify autism-related challenges and tailor support accordingly, even in the absence of a formal diagnosis. These tools are reviewed in the following sections.

Identification in the early years

Seven studies in the review investigated identification tools that could be used in the early years from infancy to preschool (ages 0 to 4).

In general, findings from studies in our REA suggest there is not a single tool alone that can identify autism-related needs or screen for early diagnosis of autism. Additionally, two reviews (Cahyadi et al., 2022; Jones et al., 2014) emphasise that early detection of autism should not rely on a single domain (e.g., such as social, behavioural, or communication skills). Instead, a combination of indicators across multiple developmental areas should be considered. Thus, this should also apply to any identification or assessment completed in educational settings to guide effective support plans that can address a range of strengths and challenges.

Since a formal diagnosis can be made as early as age two, early surveillance of behaviours and screening is important to implement proper support. Early identification tools (e.g., observations and teacher-report questionnaires) in preschools and early childcare centres were evaluated in a systematic review by DeLucia et al. (2024). Results suggested that several specialists including specialist teachers, psychiatrists, and general practitioners can conduct reliable screenings in early childhood settings (rather than in clinical settings). Further, this study found that parents and teachers may report differently on questionnaires. Therefore, it is useful to obtain information from both sources. Although the majority of the tools reviewed were designed for clinical use, one tool, the Classroom Observation Scale (COS), was used directly by teachers who had received 30-45 minutes of training (unspecified) prior to using the tool.

1. The Classroom Observation Scale (COS) is a teacher-friendly tool designed to assess children's social communication, interaction, and engagement within classroom settings. It involves structured observations of a child during regular classroom activities, allowing teachers to rate behaviours such as attention to task, communication with peers, and nonverbal social cues.

While not a diagnostic tool, the COS was useful in identifying pre-schoolers (ages 2 to 4) more likely to be diagnosed with autism in the future across user types. In other words, more children who had needs identified from use of the COS tool later went on to get an official autism diagnosis than those where COS didn't pick up any needs. This tool could help build individual profiles to guide referrals and explore areas of potential support and intervention.

Other observational techniques were reported on in this review; however, these approaches involved individuals other than the child's regular classroom teacher or childcare professional (e.g., research assistants, autism specialists, or special education staff). As such, none of the reviewed studies directly addressed the training of childcare practitioners, instead relying on external observers within classroom settings. This

reliance may limit the scalability of observational screening for autism, as implementation would require additional time and specialist expertise.

Two reviews (Lami et al., 2017; Yee et al., 2017) investigated measures of participation in young autistic children. Participation, defined as involvement in life situations (World Health Organisation, 2007), contributes positively to health and well-being. Engaging in meaningful activities is also considered a key outcome in clinical practice (Hemmingsson & Jonsson, 2005). While many tools identified in these reviews require specialist qualification to administer and interpret, several tools identified could be used by teachers without specialist qualifications based on tool guidance.

1. The Assessment of Preschool Children's Participation (APCP) is a parent-report questionnaire that measures how often young children (typically aged 2 to 5 years) participate in everyday activities across different settings, such as home, preschool, and the community. It focuses on the diversity, intensity, and enjoyment of participation, helping to identify areas where a child may need support. While it is designed for parents to complete, teachers or early years practitioners can administer it to parents and help interpret the results with basic training or guidance, making it a practical tool for use in early childhood education settings.
2. The Child and Adolescent Scale of Participation (CASP) is a structured parent-report questionnaire that measures how well children and young people (typically aged 5-21) participate in home, school, and community activities compared to peers. Teachers can administer it, but interpreting open-ended responses may require additional experience or support from a specialist.
3. The Children's Assessment of Participation with Hands (CAPH) assesses how children (typically aged 3-14) use their hands in everyday activities, through a parent-report format. Teachers can administer the tool but may need guidance in interpreting levels of assistance required in specific functional domains.
4. The Children's Participation Questionnaire (CPQ) is a simple, parent-report tool that evaluates a child's participation in everyday life activities at home, school, and in the community. Teachers can both administer and interpret the results with minimal training, making it suitable for educational settings.

Based on psychometric features¹, relevance to autism, and feasibility for teacher use, the Children's Participation Questionnaire (CPQ) emerges as the most suitable measure for teachers assessing participation in preschool aged (aged 2 to 4) autistic children. Unlike

¹ Psychometric properties refer to how trustworthy and accurate an assessment tool is. Two key features are reliability (i.e., how consistently the tool gives similar results), and validity (i.e., whether it actually measures what it claims to measure). For example, if a behaviour questionnaire gives very different results depending on who completes it or when it's used, it may not be reliable. If a tool claims to measure anxiety but mostly reflects general behaviour issues, it may lack validity.

other tools that require clinical training or specialised knowledge, the CPQ is a structured parent-report questionnaire, easily administered and interpreted by teachers with minimal training. Its broad focus on everyday activities, enjoyment, and parental satisfaction aligns well with classroom-based observation and family-centred practice, making it both practical and psychometrically sound for use in educational settings.

Digital tools, particularly those assessing social and motor domains, were investigated in two reviews (Black et al., 2020; Mukherjee et al., 2022) and may be emerging as promising scalable solutions, especially when paired with machine learning and computer vision for automated analysis. These tools involve gamified tasks, virtual-reality platforms and automated analysis of video or audio recordings of children's behaviours and speech. These technologies could enable wider implementation through task-sharing with non-specialist providers. However, most tools remain in early stages, with few validated across large, diverse populations. There is a pressing need for coordinated large-scale validation efforts and standardised measures that can reliably detect autism across developmental stages and contexts. Overall, the evidence base is growing but lacks consistency, signifying the need for more robust, inclusive, and context-sensitive approaches to both assessment and functional support.

Tools for identifying the needs of autistic children in the early years summary

- The Classroom Observation Scale (COS)
- The Children's Participation Questionnaire (CPQ)

Language and communication skills

Social and communication skills (e.g., social-emotional reciprocity, nonverbal communication, and the ability to form and maintain relationships) are one of the core areas of autism diagnosis according to the DSM-V. While difficulties affecting social and communication skills can serve as potential markers for screening and diagnosis, they may also be useful to measure in order to plan support and monitor progress in school-based interventions. Four systematic reviews included in this REA investigated identification and assessment tools for areas of language and social communication skills.

Findings from two reviews (e.g., Broome et al., 2017; Chesnut et al., 2017) indicate that there is growing evidence of tools that measure speech, social and communication skills in children, particularly in early childhood. Parent-report screeners such as the Social Communication Questionnaire (SCQ) (Rutter, 2003) show generally good validity, especially when these tools focus on social interaction. However, the SCQ is less suitable for children under four because the SCQ relies on retrospective parent-reporting

of behaviours that may not yet be developmentally appropriate or stable in children under four, potentially reducing its sensitivity and specificity in this age group (Allen et al., 2007). While teachers can contribute useful insights, they are not the primary intended users of the SCQ. Interpretation of the results of these tools should always be completed by a trained clinician.

In parallel, digital direct-observation tools, particularly those measuring social and motor domains, are emerging as promising, scalable options. Direct observation of different behaviours and patterns can be a useful way of identifying autism and related needs. Direct observation offers real-time insight into a child's behaviours at a specific time point (e.g., during classroom transitions) or during a specific task (e.g., a whole-class literacy task). Direct observation allows for more objective data collection (versus questionnaire responses which can be more subjective) and can capture non-verbal cues such as body language, facial expressions, or movement which can indicate emotional or sensory needs.

Direct observation may involve coding behaviours by hand. For example, an observer will record what a child is doing every 30 seconds during an activity such as a science lesson. However, this form of direct observation can be very time-consuming and requires the observer to have some training in the use of structured tools (e.g. interval recording, frequency counts, event sampling) and in using coding systems reliably, ensuring consistency if multiple observers are involved. Thus, the implementation of accessible digital direct observation devices and integration with machine learning offers potential for automated and objective assessment even in low-resource settings. However, large-scale validation and scalable development have not been widely researched yet and remain urgent priorities (Black et al., 2020).

McClain et al (2017) reviewed over 117 studies to assess the current state of autism assessment and evaluation research in the field of school psychology. While they recommended a number of implications for trained psychologists, there were a few implications for school-based assessment. In particular, the Direct Behaviour Rating–Social Competence (DBR-SC) assessment was found to be a reliable measure for understanding the social competence of students (aged 11-14 in this review) as well as the Social Skills Q-Sort (aged 5-8 in this review).

The Direct Behaviour Rating–Social Competence (DBR-SC) is a quick, teacher-friendly tool used to monitor pupils' social behaviours, including peer interactions, compliance, and engagement. Teachers rate these behaviours on a simple scale based on daily or weekly observations. It typically takes less than a minute to complete and helps track progress over time. While teachers can administer and interpret the tool for classroom use, working with a SENCo or behaviour specialist can support deeper analysis and inform targeted interventions. This assessment is typically used for children aged 5-12.

The Social Skills Q-Sort (SSQS) is an observation-based assessment tool designed to evaluate a child's social behaviours in everyday school settings. It uses a set of descriptive statements or behaviour cards that are sorted by the teacher or other familiar adults based on how characteristic each behaviour is of the child. These behaviours cover key domains such as cooperation, empathy, self-control, and peer interaction. The Q-sort method provides a structured way to develop a social skills profile, highlighting both strengths and areas that may need support. Teachers can administer the SSQS without specialist training, making it a practical tool for use in classrooms or as part of SEND reviews. It is particularly useful for identifying social development needs, guiding targeted interventions, and monitoring progress over time in children with social, emotional, or communication challenges. The SSQS is generally suitable for children aged 4 to 12 years, though some versions or adaptations may extend slightly younger or older depending on the context.

Measuring social and communication skills summary

- Direct observation (by hand or digitally assisted)
- The Direct Behaviour Rating – Social Competence (DBR-SC)
- The Social Skills Q-Sort (SSQS)

Behaviour assessment

Educators and clinicians may wish to assess various behaviours to identify potential strengths, challenges to support, or track progress with a given intervention. Two systematic reviews identified in our search addressed areas of behavioural assessment.

A systematic review by Howell et al (2019) evaluated 26 assessments to assess adaptive behaviour (including functional communication, independence and daily living skills), appropriate social behaviour (including reductions in challenging and problem behaviour) and restricted and repetitive behaviours and interests in autistic children. Based on the measurement properties, purpose, usability, and applicability of use of the assessments alongside the school curriculum, Howell et al. (2019) recommended four assessments that were the most appropriate to measure these behaviours. (1) The Pervasive Developmental Disorder Behaviour Inventory (PDDBI), (2) the Aberrant Behaviour Checklist (ABC), (3) the Autism Treatment Evaluation Checklist (ATEC), and (4) the Teacher Autism Progress Scale (TAPS).

However, it should be noted that while none of these tools are entirely outdated in their use, the PDDBI and ATEC are less commonly used or considered less aligned with UK standards and terminology, particularly in formal assessments or NHS pathways. The ABC and TAPS are still used; however these tools are founded on an outdated focus on

"inappropriate" and "maladaptive" autistic behaviours. Therefore, the current REA does not recommend these tools based on current advances in autism research. Wherever possible, tools should align with NICE guidelines and local SEND frameworks.

In contrast, the Strengths and Difficulties Questionnaire (SDQ), while not a NICE-recommended autism screening tool, is supported by a strong evidence base including its use to assess behaviour in Clark and Adam's (2022) review of resilience measures. It is a brief screening tool for measuring emotional and behavioural functioning in children and young people and is widely used in UK educational and clinical settings. Its focus on strengths as well as difficulties, and its alignment with broader mental health and SEND frameworks, make it a more appropriate choice than behaviour checklists that conceptualise autistic traits primarily in deficit terms. The SDQ can therefore provide valuable contextual information to support a holistic understanding of a child's profile alongside autism-specific assessments.

The Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001) is a brief behavioural screening tool designed to identify emotional and behavioural difficulties in children and young people aged 2 to 17 years and guide further assessment. The questionnaire consists of 25 items divided into five subscales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behaviour. The first four subscales combine to form a Total Difficulties Score, while the prosocial scale is reported separately to highlight the child's strengths. There are versions of the SDQ for parents (ages 2–17 years), teachers (ages 4–17 years), and self-report by young people (ages 11–17 years). It typically takes 5 to 10 minutes to complete and can be administered on paper or digitally. Respondents are asked to rate each item in the questionnaire based on their observations of the child. The SDQ is freely available for use [on the official SDQ website](#). According to developers, this tool is not recommended for progress monitoring.

Although initial identification and assessment of needs are important, ongoing monitoring of needs is also crucial to determine effectiveness of support and guide further approaches. One review of single-case studies (Witmer et al., 2014) examined strategies (i.e., via formal testing or observations) that have been used to monitor progress of interventions in the areas of behaviour and social communication for children and young people aged 5 to 18. Findings highlighted that formal testing may be more suitable than observation for monitoring skill acquisition, as it allows for controlled conditions and targeted adjustments to better support the demonstration of specific skills.

In contrast, observation is often better suited to tracking behaviours that occur naturally and more frequently in everyday contexts. It is particularly valuable when assessing whether learned skills are being generalised across different settings or tasks. For example, structured observations (e.g., interval sampling and momentary time sampling) of specific behaviours, such as sharing materials or completing tasks, were a particularly

useful strategy for teachers to monitor and understand student behaviour in the classroom. This approach was found to be more practical and informative for educators than relying solely on formal tests or assessments. This differed for parents, who were more commonly involved in completing structured assessments and questionnaires aimed at identifying social communication difficulties and behavioural concerns, suggesting a complementary role between home and school settings in the monitoring process.

Measuring behaviour summary

- When considering behaviour assessments, it is important to stay up-to-date with current guidance and recommendations
- Many behaviour assessments are outdated as our understanding of autism and how to support needs of autistic children have changed
- The Strengths and Difficulties Questionnaire (SDQ) is an evidence-based tool used for initial screening and can guide assessment
- Ongoing monitoring of progress is important

Sensory processing assessment

Sensory processing refers to the way individuals perceive, interpret, and respond to sensory input (e.g., sights, sounds, textures, smells, tastes, and movement). Autistic individuals often experience atypical sensory processing, which can include hyper-responsiveness (e.g., distress from loud noises), hypo-responsiveness (e.g., lack of reaction to pain), or sensory-seeking behaviours (e.g., fascination with spinning objects), affecting attention, behaviour, and participation in daily activities (Ben-Sasson et al., 2009; Tavassoli et al., 2014).

Yeung and Thomacos (2020) conducted a scoping review to identify tools to measure sensory processing in autistic children aged 0-12 years. This review identified 12 different tools that were based on teacher or caregiver report. Seven sensory modalities (i.e., visual, olfactory, taste, auditory, tactile, vestibular (balance), and proprioceptive (self-movement, body-position)) and three associated domains (i.e., social participation, modulation – the ability to regulate and respond appropriately to sensory stimuli, and praxis – the ability to plan and execute movement) were identified across the included assessments.

The Short Sensory Profile (SSP; Dunn, 1999), the Sensory Profile School Companion (Dunn, 2006) and the Sensory Processing Measure Main Classroom Form (Pollock, 2009) emerged as assessments that can be completed by teachers to help identify

sensory sensitivities that could affect engagement or behaviour. However, these assessments should not be used independently for diagnostic purposes. While teachers are well placed to provide this information, interpretation and decision-making should involve clinical professionals such as occupational therapists.

Psychosocial and mental health assessments

Several studies explored identification of mental health and psychosocial factors that may be associated with autism, highlighting their role in shaping educational and developmental outcomes. Some of these factors, such as resilience, act as protective factors, supporting children's ability to cope with challenges and respond positively to interventions. Others, like anxiety, may serve as contributory risk factors, potentially leading to poorer outcomes in areas such as learning, communication, and behaviour. Understanding both protective and risk-related psychosocial factors is important for tailoring effective support strategies in educational settings.

Clark and Adams (2022) investigated measures of resilience in autistic children. Resilience may serve as a protective factor as building resilience supports stress-management, problem-solving strategies, and coping with setbacks, which can reduce the emotional impact of these challenges (e.g., Heselton, 2023). A few approaches to measuring resilience were identified in their review. Firstly, the Resiliency Scales for Children and Adolescents (RSCA; Prince-Embury 2007), which is a 64-item self-report measure, composed of nine subscales that form three scales, suitable for children and young people aged 9-18 years, and was the most common measure of resilience. Secondly, the Healthy Kids Resilience Assessment (HKRA; Constantine et al. 1999), a 56-item self-report assessment of external resources, internal assets and school connectedness in primary and secondary school students. Finally, the Psychological Resilience Scale (Merrell 2011) was also used. While these are self-report measures and can be facilitated by educators, interpretation should be guided by a trained clinician.

Measures of behaviour, emotional regulation, and coping self-efficacy were also used to assess aspects of resilience across the studies included in Clark and Adam's (2022) review. Specifically, behaviour was assessed using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001), emotional regulation with the Bar-On Emotional Quotient Inventory (Bar-On EQ; Bar-On, 1997) and coping self-efficacy using the Coping Self-Efficacy Scale (CSES; Chesney et al., 2006). Among these, the Strengths and Difficulties Questionnaire is particularly accessible for use by teachers.

Self-report measures are also increasingly used in research and alongside diagnostic screening to help identify co-occurring difficulties (e.g., depression, anxiety, etc) in autistic children and young people. Similar to tools like the SDQ, they provide insight into broader support needs rather than serving as indicators of autism itself. While there is

some debate over whether autistic children and young people can reliably complete these assessments themselves or whether an informant (e.g., parent or carer) is better suited, one systematic review identified in our search suggests that both sources can provide valid and reliable information. This review by Kim and Lecavalier (2021) examined the use of self-report measures in identifying psychiatric symptoms in autistic individuals aged 6 years and older. Their findings suggested that autistic children and their parents typically provide similar ratings of the child's anxiety symptoms, comparable to the agreement observed between non-autistic children and their parents.

However, most of the studies that looked at how well these tools match a clinician's judgement found that the tools were only sometimes accurate. In many cases, they had low to moderate accuracy, meaning they often missed important difficulties or gave false positives (i.e., incorrectly indicating a condition or attribute is present when it is not). The results across studies were also inconsistent, meaning we can't be fully confident that the tools will work the same way in different settings or with different children. Additionally, only about half of these studies were judged to be high quality. Thus, self-report tools alone may not be reliable enough for screening or diagnosing psychiatric symptoms in autistic children and it is recommended that clinicians are involved in the process. Further, these findings are limited as participants from this study had an above average IQ and likely were chosen because they had average verbal cognitive abilities and were able to report internal states.

Measuring mental health and psychosocial difficulties summary

- Self-report measures such as the Strengths and Difficulties Questionnaire (SDQ)

Identification and assessment summary

Taken together, findings from these reviews included in our REA are consistent with NICE guidelines, which emphasise that autism identification should involve a collaborative, multidisciplinary approach based on multiple areas of assessment. This process should also include ongoing input from families and from the child or young person themselves. While some tools can be administered by parents and carers, teachers or school staff, interpretation typically requires specialist input to inform appropriate support. Nonetheless, the role of mainstream educators in this process is important particularly during the early stages of identification, which often involve a screening process before formal diagnosis. Teachers are often the first to notice signs of challenges, and their observations contribute essential insight in diagnosis and support plans. It is therefore crucial that the information they provide is both timely and accurate, as this can significantly influence the effectiveness and speed of follow-up assessment and support.

For mainstream teachers working with autistic children or suspected at-risk children, current research highlights both emerging opportunities and persistent challenges in identifying and supporting a variety of primary needs and co-occurring difficulties within educational settings. While some promising strategies exist to identify different needs such as behavioural, social, mental health, or participation measures, such as through observations, or digital screening methods, many are still in early development stages and lack robust validation. Teachers should be aware that screening and diagnostic tools often vary in quality, and many have limited evidence on their reliability, validity, or responsiveness to change, especially in classroom settings. Tools like the Strengths and Difficulties Questionnaire, Social Communication Questionnaire, and participation measures such as the Children's Participation Questionnaire can offer useful insights but may not fully capture the individualised challenges faced by pupils with autism, such as sensory sensitivities or restricted interests.

Digital tools, show potential for broader accessibility and task-sharing even in lower-resource settings, though these too require further large-scale testing. In areas such as anxiety and sensory assessment, the evidence is mixed, with research suggesting that multiple factors, such as motor, cognitive, and emotional factors, interact in complex ways, making it essential for teachers to take a holistic view of pupil needs. Importantly, many existing tools rely on parental reporting or require interpretation by trained specialists, which limits their use in everyday classroom practice. As such, teachers play a vital role in observing behaviour, adapting the learning environment, and working collaboratively with families and professionals to build a comprehensive understanding of each child's strengths and support needs.

Overall, there are some tools that can be used by mainstream educators to measure participation, social and communication needs, mental health or psychosocial needs, and behavioural challenges of children and young people with diagnosed or suspected autism. Those with interpretive or clinical components are best implemented within multidisciplinary teams. However, the evidence regarding these tools' reliability remains limited. While many of the tools available often require specialist qualifications for administration and interpretation, several can be used by teachers without such qualifications. However, the studies did not directly compare outcomes from specialist-versus teacher-led administration; instead, they simply provide evidence that the tools can help identify areas of need. Thus, since no studies compared specialist vs teacher use, further research is needed to establish the equivalent accuracy, reliability, or decision-making value across users.

Support and intervention

The aim of this section is to review the studies from our search that focused on support and intervention strategies suitable for use by mainstream education professionals. Although there is a substantial body of evidence supporting instructional methods for autistic students that target social, communication, and daily living skills (e.g., Cruz-Torres et al., 2020; Laugeson et al., 2012; Strain & Fox, 1981; Strain et al., 1979; Zhao & Chen, 2018), considerably less is known about the effectiveness of programmes focused on enhancing academic skills. Our REA specifically focuses on approaches that are effective in supporting educational outcomes including literacy, writing, maths, science, and general attainment.

Support for students with SEND can be provided at different levels, starting with universal strategies delivered to all students through evidence-based 'quality first' teaching approaches. Universal provision, or 'tier 1' consists of evidence-based pedagogical approaches and may be delivered as whole-class teaching, small groups, or even individual activities. When universal approaches aren't enough to meet the educational needs of students, targeted support can be offered, tailored to individual needs, and implemented either in small groups or through one-to-one interventions. Finally, if this second 'tier 2' is still not effectively addressing the needs of students, support can be offered at the third 'tier 3' which consists of specialist support which may involve external professionals such as Speech and Language Therapists or coordinated multi-agency support (e.g., through an EHC Plan). This so-called tiered approach to support children's educational needs is well established in the UK educational context (e.g., see SEND Code of Practice, 2015). Similar models are also used in the US educational context such as response to intervention models (Fuchs & Fuchs, 2006) or multi-tiered systems of support (McIntosh & Goodman, 2016), where children who do not progress with effective universal treatment are offered more individualised and targeted support. This section will first report on support at the tier one level which involve instructional approaches and classroom support, and then will discuss support that is more targeted at the tier 2 and tier 3 level.

When reporting on intervention and support strategies in this REA, we sometimes refer to effect sizes that were reported in the studies reviewed. Effect sizes range from 0 to 1 and refer to how much of a difference an approach or intervention makes, beyond just whether it works. A small effect (around 0.2) means a modest improvement, a medium effect (around 0.5) suggests moderate improvement or progress, and a large effect (0.8 or more) indicates a strong impact on learning.

Additionally, evidence can come from various study designs, each differing in the strength and type of reliability they offer. Single-case designs provide strong evidence for the consistency of effects within individuals, making them valuable for understanding how interventions work in specific cases. However, their findings may not be widely

generalisable (i.e., applicable to other individuals and/or settings). In contrast, group-design studies such as randomised controlled trials offer more generalisable results across larger populations but may overlook important individual differences in how students respond to interventions. Ideally, a strong body of evidence should include multiple types of study designs.

We also refer to standardised assessments or outcome measures versus researcher-created or bespoke outcome measures. Standardised assessments are norm-referenced tools that have been trialled on large, representative samples to establish reliability (consistency of scores) and validity (that the test really measures what it claims). These allow for comparison of a student's performance to a representative against a representative sample of age-matched peers, allowing for an estimate of whether a student is performing above, at or below expected levels. By contrast, researcher-created or bespoke measures are tailored to the exact targets of an intervention or teaching programme for example, a bespoke word-definition task featuring the precise vocabulary items taught and practised. Although research-created measures tend to be more sensitive to the incremental progress students make over short instructional periods, these measures lack the normative data and the extensive psychometric testing of standardised tools.

Universal support: High quality teaching and classroom support

The SEND Code of Practice states that high-quality teaching, differentiated for individual pupils, is the first step in responding to pupils who have or may have SEND. Additional intervention and support cannot compensate for a lack of good quality teaching (DfE, 2015, p. 99). By providing high-quality teaching that is evidence-based and differentiated, schools may reduce the likelihood that students will require additional, more intensive support. Effective quality-first language teaching relies on strong classroom management and instruction, supplemented by targeted or specialist oral-language support when needed (Fuchs & Fuchs, 2006; 2009).

A range of inclusive instructional strategies and classroom design approaches can support autistic children and young people at this first tier. The approaches identified in our REA include instructional techniques and adjustments to the physical or social environment.

Instructional strategies

Educators of autistic students can employ a range of evidence-based teaching and instructional strategies that support learning across subjects. Many of these approaches share common principles: they provide structure, break tasks into manageable steps, use

clear prompts or cues, explicit instruction, and praise and reward. For instance, Discrete Trial Training (DTT) is a well-established structured approach (Curiel et al., 2020). In DTT, a skill (academic or functional) is broken down into small sub-skills which are taught in repeated trials with prompts and rewards for correct responses.

Response prompting strategies where support is provided to encourage correct responses and gradually faded to promote independence are also particularly effective strategies in supporting various learning outcomes for autistic children and young people. Knight et al (2015) found that response-prompting procedures (e.g., model-lead-test; time delay; system of least prompts) and visual supports (e.g., procedural facilitators) can increase comprehension skills in content areas of English, maths, and science. Similarly, another review demonstrated that Constant Time Delay was found to be effective in teaching reading skills to autistic children and young people aged 7 and older (Horn et al., 2023). Another systematic review in our REA (Morse, 2022) found that simultaneous prompting is also effective in teaching maths, reading, story writing, learning vocabulary and sight words for autistic children across different age groups.

1. Constant Time Delay is a systematic instructional strategy used to teach new skills. It involves presenting a prompt after a fixed delay, allowing learners the opportunity to respond independently before receiving assistance, thereby promoting independence and reducing prompt dependency (Wolery et al., 1992). Constant Time Delay can be effectively implemented through teacher-delivered (flashcards, direct instruction) and technology-based (computer-assisted, PowerPoint, SMART boards) methods.
2. Simultaneous prompting is an instructional strategy used to teach new skills by providing the prompt immediately alongside the instruction, ensuring the learner responds correctly from the start. This method prevents errors and promotes consistent correct responding.

Another evidence-based practice is creating a visually structured environment, which was demonstrated by several reviews identified in our search (e.g., Conner et al., 2023; Finnegan et al., 2016; Knight et al., 2015; Sing et al., 2021). Visual supports can assist communication and understanding by capitalising on the visual processing skills of autistic individuals. They can take many forms including graphic organisers, schedule charts, pictorial instructions, choice boards, colour-coded materials. Most importantly, these supports have been shown to increase independence and academic engagement. For example, a picture schedule can enable a student to transition between activities without adult prompts, or a set of visual task cards can guide a student through a multi-step math problem.

Direct Instruction and explicit teaching are also evidence-based strategies to support autistic children during learning:

1. Direct Instruction (DI), developed by Engelmann and colleagues (2002), refers to a type of structured teaching method. It involves instruction being delivered explicitly and concisely where teachers strategically sequence the lesson and script everything included in a lesson (Marchand-Martella et al., 2013). The benefits of direct instruction have been demonstrated in both single-case designs (e.g., Conner et al., 2023; Finnegan et al., 2016) and group-design studies (Tipton-Fisler & Knight, 2024) for children and young people in both primary to secondary stages at school. Specifically, direct instruction programmes such as Corrective Reading Thinking Basics and Corrective Reading Comprehension (Englemann et al., 2002) were associated with improvements in reading comprehension across age groups, in maths (ages 5 to 24) (Ledbetter-Cho et al., 2018) and for teaching science to autistic children in secondary school (Barnett et al., 2018). Barnett et al (2018) also demonstrated a benefit of Direct Instruction paired with visual materials such as e-texts, graphic organisers, and scripted lessons as well as inquiry-based practices that provide hands-on exploration for autistic young people aged 14 to 15.
2. Explicit teaching on the other hand is a broader pedagogical approach where learning goals and strategies are made visible to students; it includes clear modelling, guided practice, and independent application, but it is not necessarily scripted (Archer & Hughes, 2011). Explicit instruction has been found to be effective in areas of maths, science, and reading (e.g., Alresheed et al., 2018; Ehsan et al., 2018; Spencer, 2014). A combination of explicit and systematic instructional programs may show promising results, but the evidence-base is still limited (Plavnick et al., 2015; Sulu et al., 2021). These types of instructional programmes begin with small steps where learner understanding and active and successful participation are frequently assessed (Kinder et al., 2005; Hughes et al., 2017; Rosenshine, 1987). These programmes aim to enhance both the amount and quality of student learning by systematically building essential background knowledge, which can then be linked to new content.

Finally, precision teaching has been found to be effective with this group. Specifically, this approach involves brief, targeted practice, frequent progress tracking, and data-driven instructional adjustments. It can effectively increase a variety of component skills for autistic children, including emotion identification, storytelling, sight word reading, foundational motor skills, and intraverbal responding (Mannion, 2022).

Best practices across these reviews also emphasise consistency and routine, use of student interests to motivate learning (e.g., incorporating a child's favourite topic into lessons), and ongoing progress monitoring to adjust strategies as needed. One systematic review (Reutebuch et al., 2015) found that providing a choice component in interventions for autistic children and young people across age groups results in

improvements in student work completion, behaviours (e.g., increase in on-task behaviour, reduction in challenging behaviour), and affect and interest. Teachers are encouraged to use reinforcement by thoughtfully praising or rewarding effort and successes to encourage growth, while gradually teaching intrinsic motivation and self-reinforcement as appropriate. It is also important to recognise that many autistic children and young people may struggle with language comprehension and communication, particularly non-literal language. Thus, clarity, directness, detailed explanations, and expectation setting are also important to incorporate in effective instruction.

Effective universal instructional strategies for autistic children and young people summary

- Prompting
- Breaking down tasks into manageable steps
- Visual supports
- Direct instruction
- Explicit instruction
- Precision teaching
- Reward and praise
- Establishing routine and consistency
- Mindful use of language

Classroom environment

In the [Cross-Cutting Themes Report](#) of our collection of reviews, we highlight several effective strategies to design inclusive classrooms which benefit children with different types of SEND. Therefore, these strategies can also be applicable to autistic children and young people and will not be repeated in the current review. Here we review more specific adjustments that can be put into place for autistic children and young people.

As discussed in the [Sensory and/or Physical Needs Report](#), classrooms and school environments can be highly stimulating and overwhelming for pupils with sensory needs. People with autism may also experience sensory differences, hypersensitivity, or lack of sensitivity in relation to the eight senses. These include sight, touch, taste, light, smell, hearing, balance, and body awareness. Sensory dysregulation can affect multiple areas, including learning, academic progress, social interaction, thinking skills, and behaviour in class. Pupils who seek sensory input may display behaviours that appear disruptive,

such as excessive movement, touching objects, or misusing equipment, which can interfere with concentration. They may also struggle with multi-step instructions and find transitions between tasks particularly difficult (Wild & Steeley, 2018).

Autistic individuals often have differences in attention, exploring interests and how they learn; this can include being very focused on particular interests or topics. Flexibility and transitions can be difficult, so by providing routines and structure, they often feel safer and more comfortable as this lessens uncertainty (Autism Education Trust, 2025).

Targeted support for autistic children and young people

Improving academic outcomes for autistic students often requires explicit, individualised strategies. In this section we review several findings that address targeted support techniques for autistic children and young people. Although many of these approaches are targeted to the individual needs of the students, many can also be implemented in classroom settings. The research evidence for interventions targeting educational outcomes (e.g., maths, science, reading, writing, and general attainment) is less established compared to other interventions such as social skills training (Wong et al., 2015). However, there is still a growing body of evidence coming from a range of single-case designs with few participants as well as some larger-scale group-designs. In terms of reliability of evidence, single-case designs offer strong evidence for consistency of effects within individuals, but their findings may not generalise widely. Group-design studies provide broader reliability across participants but may mask individual differences.

It should be noted that some of the techniques reviewed in this section of our REA are applied behaviour analysis (ABA), or are traditionally grounded in ABA theory. The term ABA intervention refers to treatment approaches that: (a) are implemented systematically following the principles of applied behaviour analysis; (b) are applied as early as possible in the child's life, preferably before the age of 3 years; (c) are usually provided in a student-teacher ratio of one-to-one before generalisation procedures are used; (d) are individualised, comprehensive, and target a great number of skills; (e) incorporate skills that are targeted following a hierarchy based on typical development; and (f) are used in conjunction with parent-education services.

Although research (including findings from this REA) has found positive outcomes for some of these techniques (e.g., Makrygianni, 2018), it should be noted that some types of approaches are controversial among educators and autistic individuals. For example, it has been argued that improved outcomes observed with these approaches may result from masking because of negative reinforcement which is also linked to mental health issues later in development (for research on autistic experiences with ABA see Anderson, 2023). Further, in England, local authorities also may not fund these types of

interventions as part of EHC plans. While we aim to accurately report the data found in our systematic search, we also will keep our recommendations relevant and meaningful based on the most up-to-date understanding and research around autism.

Reading instruction

Some autistic children may have difficulties with reading fluency and comprehension (Frith & Snowling, 1983; Nation et al., 2006). Reading profiles of autistic children are typically heterogeneous and poor reading outcomes can result from a number of different factors including poor oral language skills or difficulties in inclusion and engagement.

Difficulties in reading for autistic children may also be related to social cognition and social behaviour factors which could limit engagement and lead to poorer quality literacy experiences (Ricketts et al., 2013). These factors in turn could lead to poorer reading comprehension, which might be a more common difficulty than word-reading or decoding skills for this population (Fernandes et al., 2016). For example, shared-reading experiences in the home environment are typically shorter compared to typically developing peers (Lucas & Norbury, 2018). Therefore, while autistic children should receive high-quality instruction in basic literacy skills like any other child, they may also benefit from instructional approaches that specifically support their oral language, engagement, or social communication needs.

Our search identified a number of studies reviewing different teacher-led or technology-assisted instructional approaches (e.g., explaining an activity, modelling an activity, prompting student activity, asking guiding questions, providing definitions).

In terms of general reading instruction, there is evidence that autistic children benefit from receiving instruction in the same content as typically developing children. According to the National Reading Panel (NRP; National Institute of Child Health and Human Development; NICHD 2000), effective reading instruction incorporates a focus on five key skills which have become known as the Big Five: (i) phonemic awareness (ability to segment and manipulate sounds in speech), (ii) phonics (understanding the relationships between letters and sounds, and how letters can be combined to form words), (iii) vocabulary (understanding word meaning), (iv) reading fluency (reading with speed, accuracy, and appropriate expression), and (v) reading comprehension strategies (use of comprehension monitoring, graphic and semantic organisers, summarisation, question answering and generation, and multiple strategy instruction).

Bailey and Arciuli (2017) reviewed the effects of reading instruction that involved one or more of the Big Five components in improving reading skills for autistic children. Overall, they found that across studies, there were improvements in phonics, reading accuracy, reading fluency, and reading comprehension. Specifically, phonics instruction helped autistic children who had little, or no reading experience develop letter-sound knowledge.

Repeated reading with feedback improved fluency for higher functioning children who already had some basic word reading skills. Strategies like question answering, generating questions, and using graphic organisers supported comprehension in children who could read accurately but struggled to understand what they read. Multi-component (e.g., involving several Big Five factors) instruction appeared especially promising, leading to improvement in several reading areas across a range of learners, including larger and more diverse groups. Studies using multiple components were also rated as higher quality than the studies investigating only one component. These findings suggest that these same principles apply to autistic children as they do to typically developing readers and that multiple-component approaches have a stronger evidence-base.

Boyle et al (2019) investigated the effects of shared reading interventions for autistic children on key early language and literacy skills (e.g., listening comprehension, expressive communication, participation (noncommunicative), or a combination). Shared reading is an instructional intervention in which a teacher or adult reads a text aloud with a group of children, actively involving them in the reading process through discussion, prediction, and re-reading. They may use a specific framework following these steps: (1) pause, (2) ask questions, (3) relate to experiences, (4) evaluate and expand. They found that shared reading interventions were effective at improving listening comprehension, expressive communication, and other communicative and noncommunicative acts. Shared reading interventions are effective for children aged 2-14 years. This intervention can be delivered by any adult, including any school staff. Shared reading was found to have positive effects, even when delivered in just a small number of sessions (four sessions). This suggests that it can be an efficient and impactful approach, regardless of how many sessions are provided.

As previously discussed, oral language and verbal skills are strongly linked to reading (e.g., Snowling & Melby-Lervag, 2016). Therefore, techniques that may support these skills may transfer to reading skills. While applied behaviour analysis has demonstrated benefits in improving communication skills, expressive-language skills and receptive-language skills for autistic children and young people across a range of ages (e.g., Makrygianni, 2018), there are also other alternatives available. For example, social stories and social narratives have also demonstrated positive results in verbal skills, as well as video-modelling (Macmillan et al., 2021). Phonics and phonological awareness improvement have been demonstrated using the internet-based reading programme, MimioSprout Early Reading (MER) (Macmillan et al., 2021).

Technology is an emerging area to support literacy teaching in autistic children and young people. One systematic review (Wass & Porayska-Pomsta, 2014) investigated studies using word or spelling tutoring software for autistic children using virtual characters that offer phonological and orthographic feedback. These technological tools are well suited to providing the frequent repetition often preferred by autistic learners, can

support one-to-one instruction, and are adaptable to different ability levels and learning paces. Technology-aided instruction was also found to be effective in supporting word recognition for children and young people with autism (Alresheed et al., 2018). However, many of the evaluations in this review relied on small samples and lack sufficient experimental control, limiting the strength of the conclusions that can be drawn about their effectiveness.

Targeted approaches to reading instruction summary

- Multi-component literacy instructions (e.g., involving several Big Five factors)
- Shared reading
- Improving verbal skills (e.g., via Social Stories, social narratives, video-modelling)
- Visual supports
- Graphic organisers

Reading comprehension

Several different reviews identified in our search investigated reading comprehension interventions for autistic children and young people. There is evidence to suggest that reading comprehension skills (i.e., understanding text) may be poorer compared to word reading (i.e., decoding) or reading fluency skills for autistic children (e.g., McIntyre et al., 2017; Whitby & Mancil, 2009). Reading comprehension may also be poorer compared to typically developing peers (Brown et al., 2013). Difficulties with reading comprehension for autistic children may result from difficulties with oral language and communication, understanding non-literal language, making inferences, or difficulties with attention (Knight et al., 2019; Norbury & Nation, 2011; Ricketts et al., 2013).

Findings across studies in our REA suggest that questioning strategies such as anaphoric questions (e.g., asking what a pronoun refers to in a given context), inferential “why” questions (e.g., asking why a character acts in a certain way), and reciprocal teaching (i.e., students taking turns summarising, questioning, clarifying and summarising) are useful in supporting reading comprehension for autistic children (Tipton-Fisler & Knight, 2024). These strategies might be especially useful in supporting understanding of figurative, pragmatic or other non-literal comprehension in texts. For example, the ‘think before reading, think while reading, and think after reading’ (TWA) strategy, the adapted social story reading sessions, and answering pre-reading questions have been found to be effective in small-scale studies (Macmillan et al., 2021). However, further research is needed for these two interventions to establish validity in a wider population.

Other reviews demonstrated effective results from direct instruction, story maps, visually cued instruction, graphic organisers, metacognitive strategy instruction, and adapted texts (Alresheed et al., 2018; Conner et al., 2023; Finnegan et al., 2016; Macmillan et al., 2021; Senokossoff, 2016; Singh et al., 2021; Spencer et al., 2014). Positive findings for commercially available tools such as Book Builder (an e-curriculum) and RECALL (a program that incorporated visuals and prompts) were also associated with positive outcomes, as were direct instruction programmes such as Corrective Reading Thinking Basics and Corrective Reading Comprehension (Englemann et al., 2002). These findings demonstrate the importance of incorporating visuals into reading comprehension interventions for this population as well as the benefits of the use of prompting/reciprocal questioning strategies.

Conversely, two studies (Finnegan & Mazin, 2016; Singh et al., 2021) found mixed results for collaborative strategies and technology-assisted instruction. However, these studies were all single-case study design, which can be informative and robust, but should be followed up with further research to better establish their evidence-base.

Further, one study (McClain et al., 2021) found that autistic children with co-occurring language difficulties do not always show improvements with reading comprehension interventions to the same extent as children without these co-occurring difficulties. Thus, these children may benefit from a higher dosage of intervention.

Targeted strategies to support reading comprehension summary

- Questioning strategies
- Reciprocal teaching
- Direct Instruction
- Visual supports
- Graphic organisers
- Metacognitive strategies
- Adapted text

Writing interventions

In addition to reading difficulties, autistic children and young people may also have difficulties with writing (e.g., Kushki et al., 2011) which may be further impacted where there are language difficulties (Dockrell et al., 2014).

One meta-analysis by McClure et al. (2024) reports that research has provided evidence for two classes of writing interventions for autistic children and young people across age groups. First is the Self-Regulated Strategy Development (SRSD), and the others are classed as behavioural strategies and technology. The Self-Regulated Strategy Development (SRSD) is widely discussed in our [Cross-Cutting Themes Report](#) and will not be repeated here. In terms of behavioural strategies and technology, this meta-analysis found high quality studies (i.e., that met the standards of their quality appraisal) supporting the use of prompting, modelling, graphic organisers, visual supports and self-management strategies (e.g., including generating to-do lists and self-monitoring performance). Similar findings are also reported in another systematic review by Roth et al. (2014). The technology used in studies reviewed by McClure et al. (2024) included video clips or video models, but also specific software packages including Delta Messages software, the GoWrite instructional package, and the Alpha software, which present opportunities for students to select words and construct sentences. In this meta-analysis most participants were aged 5-12, but the majority were primary aged (5 to 11 years).

Special education teachers (i.e., a term used in the United States to refer to teachers with specialist qualifications) implemented the interventions in approximately half of the studies and in the remaining studies, researchers delivered the interventions. Therefore, it is not clear whether these interventions can be implemented as effectively by teachers without specialist qualifications.

Similarly, another systematic review in our REA found that picture prompts may be beneficial in developing story writing (Spencer et al., 2014). Additionally, mnemonics like POW (Pick my idea, Organise my notes, Write more) and WWW (Who is the main character? When does the story take place? Where does it happen?) can be useful for planning and story writing (Spencer et al., 2014).

Targeted strategies to support writing summary

- Self-Regulated Strategy Development
- Prompting
- Technology
- Modelling
- Graphic organisers
- Visual supports
- Self-management strategies
- Mnemonics

STEM (Science, technology, engineering and math) interventions

Several systematic reviews identified in our search investigated STEM interventions for autistic children and young people. Instructional strategies including explicit instruction, modelling (watching examples), task analysis (breaking down a chained task into smaller steps), prompting and reinforcement (rewards or positive feedback) were evidenced to be effective for maths and science (Alresheed et al., 2018; Di Liu et al., 2024; Holly et al., 2024; Root et al., 2021; Spencer et al., 2014).

One of the most common and effective teaching methods was Model-Lead-Test (showing, guiding, then asking the pupil to do it independently), which, along with modelling and prompting, produced strong results compared to reinforcement alone which was less effective (Di Liu et al., 2024; Holly et al., 2024; Root et al., 2021; Spencer et al., 2014). Another practice was using different prompting procedures that were found effective in teaching maths, including simultaneous prompting to teach pointing to numerals, constant time-delay, and least-to-most prompting (King et al., 2016; Root et al., 2021; Spencer et al., 2014). Techniques that were effective for STEM included concept mapping for science for upper primary (Spencer et al., 2014). However, studies that included more than one component typically found better results. For example, using prompts to teach students the steps in a task analysis for solving linear equations, and providing a graphic organiser to help them structure and complete the equations (e.g., Chapman et al., 2019).

Two systematic reviews (Alresheed et al., 2018; Spencer et al., 2014) found TouchMath (Bullock et al., 1989) to be effective for upper primary and secondary aged autistic pupils. TouchMath is a multisensory maths programme designed to support learners, particularly

those with learning difficulties or special educational needs, in understanding basic mathematical concepts. It uses visual and tactile cues, such as placing “TouchPoints” on numerals, to help students count, add, subtract, and perform other operations. Each number (1-9) has a specific number of dots (TouchPoints), which students physically touch and count to solve problems. It is often used to build number sense and fluency through explicit instruction and repetition.

Several reviews identified in our search investigated technology-based interventions (Arslan et al., 2022; Aspiranti et al., 2020; Di Liu et al., 2024; Griffith et al., 2020; Holly et al., 2024; Hughes & Yakubova, 2019; Larwin & Aspiranti, 2019; Ledbetter-Cho, 2018; Pontikas et al., 2022). Technology-based interventions for maths, including iPad apps and touchscreen tools, show strong potential for supporting mathematics learning in autistic children, particularly in number and operations, though findings across studies are inconsistent, with some showing weak or no effects. Tablet-mediated mathematics interventions that used instructional approaches such as direct instruction video modelling and schema-based instruction were found to be effective. Evidence for other domains such as social communication, literacy, and executive functioning is mixed, and methodological issues like small sample sizes and study heterogeneity limit generalisability.

In contrast, Video-Based Instruction (VBI) has strong and consistent evidence supporting its effectiveness in teaching maths to autistic students, meeting established criteria for evidence-based practices by demonstrating positive outcomes across multiple studies, research teams, and contexts (Hughes & Yakubova, 2019; Wright et al., 2020).

In a review by Di Liu et al. (2024) examining studies on technology in education for autistic pupils, it was found that factors such as the setting of where the teaching happened, who delivered the teaching, the duration or frequency of the teaching, or adherence to the teaching plan (when using technology), did not significantly impact outcomes; all approaches appeared to work similarly well.

Findings from this REA suggest tablet-mediated instruction and tablet-based apps are potentially effective tools for supporting maths learning in autistic pupils, particularly in basic number work, but should be cautious in expecting broad or generalised benefits, especially outside of maths. Given the stronger and more consistent evidence for video-based instruction (VBI), teachers may wish to prioritise VBI when selecting interventions, especially when aiming for reliable gains across diverse learners and settings.

Targeted strategies to support STEM skills summary

- Explicit instruction
- Reciprocal teaching
- Modelling
- Direct instruction
- Prompting
- Visual supports
- Task analysis
- Graphic organisers
- Reinforcement
- Metacognitive strategies
- Scaffolding
- Adapted text

Augmentative and Alternative Communication

Autistic children and young people may have complex communication needs including the lack of, or limited development of, functional speech (Light et al., 2019) and may require alternative means of communication. Augmentative and Alternative Communication (AAC) refers to a range of tools or strategies to aid communication for children and young people who may have difficulties with language production or comprehension. Types of AAC include gestures and facial expressions, writing, British Sign Language or signing systems such as Makaton, spelling words by pointing to letters, the use of apps, and using a computer with a "voice," sometimes called a speech-generating device. AAC is discussed more extensively in our [Sensory and/or Physical Needs Report](#); however, some autistic children may also use AAC and thus the evidence relating to these pupils will also be discussed here.

Reading acquisition can be particularly challenging for children and young people with complex communication needs, as many interventions, especially those targeting phonological awareness or decoding, rely on the presence of functional speech (Ruppar 2017). Thus, reading interventions for children and young people, including autistic pupils, who use AAC require adaptation.

There is some evidence supporting the effectiveness of adapted phonological interventions for individuals using augmentative and alternative communication (AAC), demonstrating large and consistent effects across ages, diagnoses, and interventionists. These interventions, which focus on phonological skills such as decoding, letter-sound association, and sound blending, reinforce the importance of structured, systematic phonological instruction for AAC users.

A systematic review by Yorke et al., (2021) on foundational reading interventions for AAC users including autistic children and young people found significant positive effects of phonological awareness, letter-sound correspondence, and decoding interventions. Across 93 individuals aged 3 to 55 years, with the majority being children aged 5-12, these interventions produced large and very large effect sizes. Pre-schoolers and adults showed the highest gains in these skills, with 47% and 98% showing improvement, respectively. The interventions proved broadly effective across various instructional methods.

Direct instruction can also be useful for AAC users. Yorke et al. (2021) reviewed several reading interventions designed to support phonological processing in children, including those with communication difficulties using AAC. These interventions included well-known programmes like Accessible Literacy Learning (ALL), Early Reading Skills Builder (ERSB), and the Nonverbal Reading Approach (NRA), as well as storybook reading and other shared reading approaches. All the effective interventions in this study used direct instruction. The Nonverbal Reading Approach showed the strongest outcomes, with pupils showing 60% improvement in reading scores on average. The ALL curriculum also showed strong results, with an average of 39% improvement in reading scores, followed by ERSB with an average of 26% improvement in reading scores. Overall, these findings suggest that structured, direct approaches to teaching reading are particularly effective, especially when tailored to learners' communication needs.

Augmented and Alternative Communication summary

- Augmentative and Alternative Communication (AAC) refers to a range of tools or strategies to aid in communication for children and young people who may have difficulties with language production or comprehension
- Evidence supports the effectiveness of adapted phonological interventions for individuals using augmentative and alternative communication

Support and intervention summary

Our review identified a total of 69 systematic reviews dedicated to the support and intervention strategies that mainstream educators can use to support educational outcomes for autistic children and young people.

High-quality teaching for autistic children and young people should promote an inclusive classroom with structured instructional strategies and visual supports. There are a range of instructional strategies shown to be effective for children and young people with autism. Approaches such as Discrete Trial Training (DTT), Direct Instruction, and Explicit Instruction are effective in developing academic and functional skills by breaking tasks into manageable steps, using clear prompts, and providing positive reinforcement. Techniques like response prompting, time delay, and the use of visual supports, such as graphic organisers, task cards, and visual schedules, further enhance comprehension and independence. Precision teaching has also shown promise in building specific skills, including reading, storytelling, and emotion identification.

Effective teaching also involves using student interests to engage learning and reinforcing effort through praise and rewards, which can be gradually faded to support intrinsic motivation. Establishing consistent routines and structured environments reduces uncertainty and supports regulation, particularly important for pupils who may struggle with transitions or sensory sensitivities. Sensory-friendly classrooms that reduce overwhelming stimuli and provide predictable, calming environments are essential for enabling focus and learning.

Many of these same approaches can be used in targeted interventions for reading, writing, maths, science, and general achievement. However, some interventions such as those supporting writing may require the use of specialists to implement. The pupil should be consulted where targeted intervention is planned to account for their individual needs, learning goals, and preferences. Materials and strategies that need adaptation should be produced in a timely manner so that autistic students can have equitable access to learning materials in-line with their peers.

However, inconsistencies in study methodologies and outcome reporting highlight the need for more rigorous research in terms of identification and support of needs of children and young people with autism.

Conclusions

This review aimed to identify effective methods for the identification and support of autistic children and young people in mainstream education.

Consistent with NICE guidance, the evidence supports a collaborative, multidisciplinary approach to identification, incorporating input from teachers, families, and the young person. While some tools can be used by educators to screen for potential needs, particularly in areas such as participation, communication, and emotional wellbeing, many require specialist interpretation and have limited validation for use in classrooms.

Mainstream teachers play a critical early role in recognising potential signs of autism and contributing essential observational insights. However, the variability in tool quality and the lack of comparative research between specialist- and teacher-led use underscores the need for cautious application and further empirical study. Digital tools and structured behavioural observation methods offer promise, particularly for broader access and early flagging of needs, but require additional testing before widespread implementation.

In terms of classroom practice and targeted support, there is a strong evidence base for high-quality teaching approaches that are structured, explicit, and visually supported. Instructional strategies such as Discrete Trial Training, Explicit Instruction, and the use of visual schedules and interest-based learning can enhance engagement, understanding, and independence. Creating predictable, sensory-sensitive environments and consulting pupils in the planning of individualised support are also key to fostering inclusive and effective education.

Inconsistencies in outcome reporting and intervention design across studies limit the generalisability of some findings. Furthermore, due to the rapid nature of this review and our focus on systematic reviews and meta-analyses, it is possible that some tools or interventions currently in use, particularly newer, unpublished, or practitioner-led approaches, may not have been captured. These omissions reflect the current state of the evidence base, not necessarily the effectiveness of those approaches. Future research should prioritise robust study designs, focus on outcomes linked to educational access and attainment, and include mainstream educator perspectives.

Overall, while a growing number of tools and strategies are available, the evidence base remains uneven, and many approaches require further validation. Future research should focus on strengthening the reliability and classroom applicability of identification tools, and on evaluating the real-world effectiveness of instructional strategies in diverse educational contexts.

Appendices

Appendix A: Search terms (PICOS criteria)

We conducted 15 separate searches across five rapid review categories, each focused on a distinct population: SEMH, SLCN, autism, sensory and/or physical needs, and cognition and learning. For each population, three searches were performed, focusing on: identification terms, support terms, and working with others. The intervention, comparison, and study type remained consistent across all searches, while the population and outcome terms varied to capture the unique characteristics of each group. This approach ensured a comprehensive examination of the research literature across the different populations. PICOS stands for: (1) Population; (2) Intervention; (3) Comparison; (4) Outcomes; and (5) Study type.

Population:

- Population terms: "adolescent" OR child* OR "children and young people" OR kid* OR "post 16" OR pupil* OR "school aged" OR student* OR teen* OR "young learner*" OR "young people" OR "young person" OR youth
- Educational setting terms: "alternat* educat*" OR class* OR "class* setting" OR "comprehensive school*" OR "early year*" OR educat* OR elementary OR "elementary school*" OR "extra-curricular setting*" OR "further educat*" OR "further educat* setting*" OR "grammar school*" OR "high school" OR "higher educat*" OR inclus* OR kindergarten OR "learning environment*" OR mainstream* OR "middle school*" OR nursery OR preschool OR "primary educat*" OR "primary school*" OR reception OR "remedi* class*" OR "school setting" OR school* OR "secondary education*" OR "secondary school*" OR "special educat*" OR "university" OR "whole school" OR "independent school"
- General SEND terms: SEND OR SEN OR "special educat* need*" OR "special need*" OR "learning difficult*" OR "learning disab*" OR "learning difference" OR "additional need*" OR impair* OR disorder* OR neurodivergent OR "additional learning need"
- Autism terms: autistic OR autism OR "autistic disorder" OR "autisti* spectrum disorder*" OR "autism spectrum condition" OR "autism spectrum condition*" OR ASC OR ASD OR "asperger syndrome" OR "child development disorder* pervasive" OR asperger* OR "pervasive development*" OR "social communication" OR "pragmatic communication"

Intervention:

- Identification terms: assess* OR "assessment app*" OR "assessment tools" OR "behavior* checklist*" OR checklist OR "class* assess*" OR "classroom observation" OR "cognitive assess*" OR "computer* app" OR "curriculum-based measure" OR diagnos* OR "dynamic assessment" OR "early screening tools" OR "educational assessment tool*" OR evaluate OR "formal assess*" OR "formative assess*" OR "graduated approach" OR identif* OR "informal assess*" OR measure OR "multi-disciplinary assessment" OR MTSS OR "multi-tiered system of supports" OR "neuro* assess*" OR observ* OR "parent* report" OR "pupil observation" OR "response to intervention" OR RTI OR screen* OR "self-assessment" OR "self-report" OR "smartphone app*" OR "standard* test*" OR "student observation" OR "tablet app*" OR "teacher judgment*" OR "teacher observation" OR tool* OR "performance-based"
- Support terms: "classroom environment" OR "SEN support" OR "SEND support" OR SWPBS OR accommodat* OR adaptat* OR approach OR "assistive tech*" OR "classroom interve*" OR "collaborative teach*" OR curriculum OR "curriculum adapt*" OR "differentiat* instruction" OR "digital learning" OR "early interven*" OR "education* program*" OR "education* support" OR "evidence-based interven*" OR "evidence-informed interven*" OR "exam access arrangement*" OR "exam accommodat*" OR "graduated approach" OR "group intervention" OR "high-quality instruct*" OR "high-quality teach*" OR inclus* OR "inclusive education" OR "inclusive practice" OR "individual support" OR "individual* education plan*" OR "instruct*" OR interven* OR integrat* OR "mainstream class* support" OR "mainstream education" OR "mainstream environment" OR "multimedia learning environment" OR "multi-tiered system* of support" OR "one-to-one" OR "parental support" OR pedagog* OR "peer support" OR personali*ed OR provision OR remediat OR "school support service*" OR "school-based" OR "special* interven*" OR "special* support" OR "specialist teach* support" OR support* OR strateg* OR "targeted interven*" OR "target* teach* strateg*" OR targeted OR "targeted support" OR teach* OR "teach* adaptation*" OR "teach* principle*" OR "teach* strateg*" OR "teach* approach" OR therapy OR "tier 1 interven*" OR "tier 1 support" OR "tier 2 interve*" OR "tier 2 support" OR "tier 3 interven*" OR "tier 3 support" OR treat* OR "universal design" OR "universal interven*" OR "universal provision" OR "universal support" OR "whole-class support" OR "whole-class teaching"
- Working with others terms: collabor* OR parent* OR carer OR caregiver OR famil* OR specialist* OR "specialist teacher" OR teacher OR educator OR TA OR "teaching assistant*" OR "support staff" OR "educational psychologist*" OR EP OR SLT or SLP or "speech and language therapist*" OR "speech and language pathologist*" OR "speech therapist" OR "speech pathologist" OR "health visitor"

OR HV* OR “Ed Psych” OR counsel* OR “mental health support workers” OR “child and adolescent mental health service” OR CAHMS OR psychologist* or therapist* OR “learning support assistant” OR LSA OR “communication support worker” OR QTOD OR QTMSI OR QTVI OR “co-production” OR “joint working” OR “healthcare professional” OR “personal carer” OR “occupational therapist” “Inter-professional collaboration” OR IPC OR expert OR clinician OR nurse

Comparison:

- Left blank to include studies without comparison groups

Outcome:

- Identification terms: N/A - Not needed for identification terms as there is not always a specific outcome
- Behavioural, Inclusion, Motivation, and Engagement terms: attendance OR "behavio* outcomes" OR "behavio* regulation" OR "behavio* improvement" OR "cognitive development" OR "communication skills" OR criminal OR economic OR employment OR engage* OR financial OR "functional independence" OR "functional skills development" OR "access to learning" OR "improvement in learning" OR "inclusive classroom" OR "increase* inclusion" OR "independent living" OR independent* OR "mental health outcomes" OR motivate* OR offend OR "prosocial behavio* " OR "reduce* learning barriers" OR “reduce* symptom*” OR "self-regulat*” OR "school performance" OR "school retention" OR "social inclusion" OR "social-emotional development" OR "teacher perceptions of student progress" OR “well-being” OR workplace
- Educational outcomes (General): "academic achievement" OR "academic progress*” OR "academic attainment" OR "academic measure" OR "academic performance" OR “additional learning support*” OR "educat* achievement" OR "educat* assess*” OR "educat* attainment" OR "educat* measure" OR "educat* outcome*” OR "educat* performance" OR "educat* progress" “executive function*” OR "functional skill* develop*” OR "improve* learning" OR learn* OR "learning progress" OR "problem solving" OR "reduced learning barriers" OR "school outcome*” OR "school performance" OR "school retention"
- Literacy outcomes: read* OR literacy OR “letter recognition” OR “letter-sound knowledge” OR “word reading” OR phonic* OR phonolog* OR “reading comprehension” OR “reading accuracy” OR “reading fluency” OR “reading delay*” OR “print knowledge” OR decod* OR “alphabet knowledge” OR “listening comprehension” OR “word recognition” OR “sentence completion”
- Writing outcomes: writ* OR literacy OR punctuation OR spelling OR “sentence writing” OR “free writing” OR “early writing” OR “emergent writing” OR “guided

writing” OR “writing fluency” OR handwriting OR “interactive writing” OR “letter typing” OR “sentence completion”

- Mathematics outcomes: math* OR numer* OR numb* “number sense” OR arithmetic* OR geomet* OR shape OR calcul* OR algebra OR counting OR addition OR subtraction OR multiplication OR division OR fractions OR statistics* OR “place value” OR “math* competenc*” OR “math* concept*” OR “math* knowledge”
- Working with others terms: collaboration* or partnership* or co-practice* or multidisciplinary* or transdisciplinary or interdisciplinary

Study type:

- Review type: review OR “systematic review” OR “meta-analysis” OR “narrative review”

References

*Indicates references retrieved from the rapid review

ALLEN, C. W., SILOVE, N., WILLIAMS, K. & HUTCHINS, P. 2007. Validity of the social communication questionnaire in assessing risk of autism in preschool children with developmental problems. *Review Journal of Autism and Developmental Disorders*, 37, 1272-8.

*ALRESHEED, F., MACHALICEK, W., SANFORD, A. AND BANO, C., 2018. Academic and related skills interventions for autism: A 20-year systematic review of single-case research. *Review Journal of Autism and Developmental Disorders*, 5(4), pp.311-326.

AMERICAN PSYCHIATRIC ASSOCIATION 2022. Neurodevelopmental Disorders. *Diagnostic and statistical manual of mental disorders : DSM-5-TR / American Psychiatric Association*. Fifth edition, text revision. ed. Washington, DC: American Psychiatric Association Publishing.

ANDERSON, L. K. 2023. Autistic experiences of applied behavior analysis. *Autism*, 27, 737-750.

ARCHER, A. & HUGHES, C. 2011. *Explicit Instruction: Effective and Efficient Teaching*, New York, Guilford Publications.

*ARSLAN, O., INAN, F. A., MOON, H., OZDEMIR, Y. M. & UZUNOSMANOGLU, S. D. 2022. Educational Technology Trends for Children with Autism Spectrum Disorder. *The Turkish Online Journal of Educational Technology*, 21.

*ASPIRANTI, K. B., LARWIN, K. H. & SCHADE, B. P. 2020. iPads/tablets and students with autism: A meta-analysis of academic effects. *Assistive Technology*, 32, 23-30.

AUTISM EDUCATION TRUST. 2025. *What is Autism?* [Online]. Autism Education TRust. Available: <https://www.autismeducationtrust.org.uk/about/what-is-autism> [Accessed 24/04/25].

*BAILEY, B. & ARCIULI, J. 2019. Reading Instruction for Children with Autism Spectrum Disorders: A Systematic Review and Quality Analysis. *Review Journal of Autism and Developmental Disorders*, 7, 127-150.

BAIRD, G., SIMONOFF, E., PICKLES, A., CHANDLER, S., LOUCAS, T., MELDRUM, D. & CHARMAN, T. 2006. Prevalence of disorders of the autism spectrum in a

population cohort of children in South Thames: the Special Needs and Autism Project (SNAP). *Lancet*, 368, 210-5.

BAR-ON, R. 1997. *The emotional quotient inventory (EQ-i): A test of emotional intelligence*, Toronto, Multi-Health Systems.

*BARNETT, J. H., FRANKEL, A. J. & FISHER, K. W. 2018. Systematic Review of Evidence-based Interventions in Science for Students with Autism Spectrum Disorders. *Education and Training in Autism and Developmental Disabilities*, 53, 128-145.

*BEN-SASSON, A., HEN, L., FLUSS, R., CERMAK, S. A., ENGEL-YEGER, B. & GAL, E. 2009. A meta-analysis of sensory modulation symptoms in individuals with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 39, 1-11.

*BLACK, M. H., MILBOURN, B., CHEN, N. T. M., MCGARRY, S., WALI, F., HO, A. S. V., LEE, M., BÖLTE, S., FALKMER, T. & GIRDLER, S. 2020. The use of wearable technology to measure and support abilities, disabilities and functional skills in autistic youth: a scoping review. *Scandinavian Journal of Child and Adolescent Psychiatry and Psychology*, 8, 48-69.

*BOYLE, S. A., MCNAUGHTON, D. & CHAPIN, S. E. 2019. Effects of Shared Reading on the Early Language and Literacy Skills of Children With Autism Spectrum Disorders: A Systematic Review. *Focus on Autism and Other Developmental Disabilities*, 34, 205-214.

*BROOME, K., MCCABE, P., DOCKING, K. & DOBLE, M. 2017. A Systematic Review of Speech Assessments for Children With Autism Spectrum Disorder: Recommendations for Best Practice. *American Journal of Speech and Language Pathology*, 26, 1011-1029.

BROWN, H. M., ORAM-CARDY, J. & JOHNSON, A. 2013. A meta-analysis of the reading comprehension skills of individuals on the autism spectrum. *Journal of Autism and Developmental Disorders*, 43, 932-55.

BULLOCK, J. K., PIERCE, S. & MCCLELLAND, L. 1989. *Touch Math: The touch point approach for teaching math computation*, Colorado Springs, CO., Innovative Learning Concepts.

CAHYADI, M., AQILAH, T., EDIYANTO, E., JUNAIDI, A. & JATININGSIWI, T. 2024. Development of Communications Identification Matrix of Early Screening for

Autism Children. *Discourse and Communication for Sustainable Education*, 14, 37-52.

CHAPMAN, O. 2020. Mathematics teacher educators' use of narrative in research, learning, and teaching. *For the Learning of Mathematics*, 40, 21-27.

CHESNEY, M. A., NEILANDS, T. B., CHAMBERS, D. B., TAYLOR, J. M. & FOLKMAN, S. 2006. A validity and reliability study of the coping self-efficacy scale. *British Journal of Health Psychology*, 11, 421-37.

*CHESNUT, S. R., WEI, T., BARNARD-BRAK, L. & RICHMAN, D. M. 2017. A meta-analysis of the social communication questionnaire: Screening for autism spectrum disorder. *Autism*, 21, 920-928.

*CLARK, M. & ADAMS, D. 2022. Resilience in autism and intellectual disability: A systematic review. *Review Journal of Autism and Developmental Disorders*, 9, 39-53.

*CONNER, C., ALLOR, J. H., HENRY, A. R., AL OTAIBA, S. & ORTIZ, M. B. 2023. Planning and Implementing Effective Language and Reading Comprehension Instructional Techniques for Students with Autism Spectrum Disorder and Cognitive Disabilities. *The Reading Teacher*, 77, 47-58.

CONSTANTINE, N., BENARD, B. & DIAZ, M. Measuring protective factors and resilience traits in youth: The healthy kids resilience assessment. seventh annual meeting of the Society for Prevention Research, New Orleans, LA, 1999. Citeseer, 3-15.

COOK, J., CRANE, L., HULL, L., BOURNE, L. & MANDY, W. 2022. Self-reported camouflaging behaviours used by autistic adults during everyday social interactions. *Autism*, 26, 406-421.

CRUZ-TORRES, E., DUFFY, M. L., BRADY, M. P., BENNETT, K. D. & GOLDSTEIN, P. 2020. Promoting Daily Living Skills for Adolescents with Autism Spectrum Disorder via Parent Delivery of Video Prompting. *Journal of Autism and Developmental Disorders*, 50, 212-223.

*CURIEL, E. S. L., AXE, J. B., SAINATO, D. M. & GOLDSTEIN, H. 2020. Systematic Review of Matrix Training for Individuals With Autism Spectrum Disorder. *Focus on Autism and Other Developmental Disabilities*, 35, 55-64.

DELUCIA, E. A., DIKE, J., ANDRZEJEWSKI, T. M. & MCDONNELL, C. G. 2024. Autism screening practices in preschools and early childcare centers: A systematic review. *Review Journal of Autism and Developmental Disorders*, 11, 1-20.

- DfE 2015. Special educational needs and disability code of practice: 0 to 25 years (Updated 2024). UK Government.
- DfE 2025. Special educational needs in England: 2024-25. UK Government.
- DOCKRELL, J. 2014. Developmental variations in the production of written text: challenges for students who struggle with writing. *In: STONE, C. A., SILLIMAN, E. R., EHREN, B. & WALLACH, G. (eds.) Handbook of language and literacy: development and disorders.* 2nd ed. ed.: New York : The Guilford Press.
- DUNN, W. 1999. *The Short Sensory Profile*, San Antonio, TX., The Psychological Corporation.
- DUNN, W. 2006. *Sensory Profile School Companion (SPSC)*, London, Pearson.
- DWORZYNSKI, K., RONALD, A., BOLTON, P. & HAPPE, F. 2012. How different are girls and boys above and below the diagnostic threshold for autism spectrum disorders? *Journal of the American Academy of Child & Adolescent Psychiatry*, 51, 788-97.
- *EHSAN, H., RISPOLI, M., LORY, C. & GREGORI, E. 2018. A Systematic Review of STEM Instruction with Students with Autism Spectrum Disorders. *Review Journal of Autism and Developmental Disorders*, 5, 327-348.
- *ELIÇIN, Ö. AND KAYA, A., 2017. Determining Studies Conducted upon Individuals with Autism Spectrum Disorder Using High-Tech Devices. *Educational Sciences: Theory and Practice*, 17(1), pp.27-45.
- ENGELMANN, S., HADDOX, P., HANNER, S. & OSBORN, J. 2002. *Corrective reading thinking basics: Comprehension level A*, Columbus, OH, SRA/McGraw-Hill.
- ESTES, A., SWAIN, D. M. & MACDUFFIE, K. E. 2019. The effects of early autism intervention on parents and family adaptive functioning. *Pediatric Medicine*, 2.
- *FERNANDES, F. D., DE LA HIGUERA AMATO, C. A., CARDOSO, C., NAVAS, A. L. & MOLINI-AVEJONAS, D. R. 2016. Reading in Autism Spectrum Disorders: A Literature Review. *Folia Phoniatrica et Logopaedica*, 67, 169-77.
- *FINNEGAN, E. & MAZIN, A. 2016. Strategies for Increasing Reading Comprehension Skills in Students with Autism Spectrum Disorder: A Review of the Literature. *Education and Treatment of Children*, 39, 187-219.
- FRITH, U. & SNOWLING, M. 1983. Reading for meaning and reading for sound in autistic and dyslexic children. *British Journal of Developmental Psychology*, 1, 329-342.

- FUCHS, L. S. & FUCHS, D. 2006. Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly*, 41, 93-99.
- FUCHS, L. S. & FUCHS, D. 2009. On the Importance of a Unified Model of Responsiveness to Intervention. *Child Development Perspectives*, 3, 41-43.
- GARRITTY, C., HAMEL, C., TRIVELLA, M., GARTLEHNER, G., NUSSBAUMER-STREIT, B., DEVANE, D., KAMEL, C., GRIEBLER, U. & KING, V. 2024. Updated recommendations for the Cochrane rapid review methods guidance for rapid reviews of effectiveness. *British Medical Journal*, 384, e076335.
- GOODMAN, R. 2001. Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40, 1337-45.
- *GRIFFITH, S. F., HAGAN, M. B., HEYMANN, P., HEFLIN, B. H. & BAGNER, D. M. 2020. Apps As Learning Tools: A Systematic Review. *Pediatrics*, 145.
- GUTHRIE, W., SWINEFORD, L. B., NOTTKE, C. & WETHERBY, A. M. 2013. Early diagnosis of autism spectrum disorder: stability and change in clinical diagnosis and symptom presentation. *Journal of Child Psychology and Psychiatry*, 54, 582-90.
- HEMMINGSSON, H. & JONSSON, H. 2005. An occupational perspective on the concept of participation in the International Classification of Functioning, Disability and Health--some critical remarks. *American Journal of Occupational Therapy*, 59, 569-76.
- HESELTON, G. A. 2023. Childhood adversity, resilience, and autism: a critical review of the literature. *Disability & Society*, 38, 1251-1270.
- *HORN, A. L., JANE, R. & AND MURPHY, K. A. 2023. Constant time delay to teach reading to students with intellectual disability and autism: a review. *International Journal of Developmental Disabilities*, 69, 123-133.
- *HOWELL, M., BRADSHAW, J. & LANGDON, P. 2019. A Systematic Review of Behaviour-Related Outcome Assessments for Children on the Autism Spectrum with Intellectual Disabilities in Education Settings. *Review Journal of Autism and Developmental Disorders*, 8.
- *HUGHES, C. A., MORRIS, J. R., THERRIEN, W. J. & BENSON, S. K. 2017. Explicit Instruction: Historical and Contemporary Contexts. *Learning Disabilities Research & Practice*, 32, 140-148.

- HUGHES, E. M. & YAKUBOVA, G. 2019. Addressing the Mathematics Gap for Students with ASD: an Evidence-Based Systematic Review of Video-Based Mathematics Interventions. *Review Journal of Autism and Developmental Disorders*, 6, 147-158.
- HULL, L., PETRIDES, K. V. & MANDY, W. 2020. The Female Autism Phenotype and Camouflaging: a Narrative Review. *Review Journal of Autism and Developmental Disorders*, 7, 306-317.
- JACQUEMONT, S., COE, B. P., HERSCH, M., DUYZEND, M. H., KRUMM, N., BERGMANN, S., BECKMANN, J. S., ROSENFELD, J. A. & EICHLER, E. E. 2014. A higher mutational burden in females supports a "female protective model" in neurodevelopmental disorders. *American Journal of Human Genetics*, 94, 415-25.
- JONES, E. J., GLIGA, T., BEDFORD, R., CHARMAN, T. & JOHNSON, M. H. 2014. Developmental pathways to autism: a review of prospective studies of infants at risk. *Neuroscience & Biobehavioral Reviews*, 39, 1-33.
- KENNY, L., HATTERSLEY, C., MOLINS, B., BUCKLEY, C., POVEY, C. & PELLICANO, E. 2016. Which terms should be used to describe autism? Perspectives from the UK autism community. *Autism*, 20, 442-462.
- *KIM, S. Y. & LECAVALIER, L. 2021. Evaluating the Use of Self-reported Measures in Autistic Individuals in the Context of Psychiatric Assessment: A Systematic Review. *Journal of Autism and Developmental Disorders*, 52, 4355-4374.
- *KING, S. A., LEMONS, C. J. & DAVIDSON, K. A. 2016. Math Interventions for Students With Autism Spectrum Disorder: A Best-Evidence Synthesis. *Exceptional Children*, 82, 443-462.
- *KNIGHT, V. F. & SARTINI, E. 2015. A Comprehensive Literature Review of Comprehension Strategies in Core Content Areas for Students with Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, 45, 1213-1229.
- KUSHKI, A., CHAU, T. & ANAGNOSTOU, E. 2011. Handwriting difficulties in children with autism spectrum disorders: a scoping review. *Journal of Autism and Developmental Disorders*, 41, 1706-16.
- LAI, M. C., LOMBARDO, M. V., AUYEUNG, B., CHAKRABARTI, B. & BARON-COHEN, S. 2015. Sex/gender differences and autism: setting the scene for future research. *Journal of the American Academy of Child & Adolescent Psychiatry*, 54, 11-24.

- *LAMI, F., EGBERTS, K., URE, A., CONROY, R. & WILLIAMS, K. 2017. Measurement properties of instruments that assess participation in young people with autism spectrum disorder: a systematic review. *Developmental Medicine and Child Neurology*, 60, 230-243.
- *LARWIN, K. & ASPIRANTI, K. 2019. Measuring the Academic Outcomes of iPads for Students with Autism: a Meta-Analysis. *Review Journal of Autism and Developmental Disorders*, 6.
- LAUGESON, E. A., FRANKEL, F., GANTMAN, A., DILLON, A. R. & MOGIL, C. 2012. Evidence-based social skills training for adolescents with autism spectrum disorders: the UCLA PEERS program. *Journal of Autism and Developmental Disorders*, 42, 1025-36.
- *LEDBETTER-CHO, K., O'REILLY, M., LANG, R., WATKINS, L. & LIM, N. 2018. Meta-analysis of Tablet-Mediated Interventions for Teaching Academic Skills to Individuals with Autism. *Journal of Autism and Developmental Disorders*, 48, 3021-3036.
- LIGHT, J., MCNAUGHTON, D. & CARON, J. 2019. New and emerging AAC technology supports for children with complex communication needs and their communication partners: State of the science and future research directions. *Augmentative and Alternative Communication*, 35, 26-41.
- *LIU, D., MAO, Y., CAI, W., LEI, Q., KANG, R. & ZENG, Y. 2024. Meta-Analysis of Tablet-Mediated Interventions to Teach Mathematics for Individuals With Autism Spectrum Disorder and/or Intellectual Disability. *Journal of Special Education Technology*, 39, 217-233.
- *LONG, H. M., BOUCK, E. C. & MARIAGE, T. V. 2024. An Updated Systematic Review of Mathematics Interventions for Students with ASD. *Education & Training in Autism & Developmental Disabilities*, 59, 148-164.
- LORD, C., RISI, S., DILAVORE, P. S., SHULMAN, C., THURM, A. & PICKLES, A. 2006. Autism from 2 to 9 years of age. *Archives of General Psychiatry*, 63, 694-701.
- LUCAS, R. & NORBURY, C. F. 2018. The home literacy environment of school-aged children with autism spectrum disorders. *Journal of Research in Reading*, 41, 197-219.
- *MACMILLAN, C. M., PECORA, L. A., RIDGWAY, K., HOOLEY, M., THOMSON, M., DYMOND, S., DONALDSON, E., MESIBOV, G. B. & STOKES, M. A. 2021. An

Evaluation of Education-Based Interventions for Students with Autism Spectrum Disorders Without Intellectual Disability: a Systematic Review. *Review Journal of Autism and Developmental Disorders*, 10, 220-238.

- *MAKRYGIANNI, M. K., GENA, A., KATOUDI, S. & GALANIS, P. 2018. The effectiveness of applied behavior analytic interventions for children with Autism Spectrum Disorder: A meta-analytic study. *Research in Autism Spectrum Disorders*, 51, 18-31.
- *MANNION, L. 2022. The use of Precision Teaching as an intervention for improving the skill acquisition of children with autism. *Educational Psychology in Practice*, 38, 57-74.
- MARCHAND-MARTELLA, N. E., MARTELLA, R. C., MODDERMAN, S. L., PETERSEN, H. M., PAN, S. 2013. Key Areas of Effective Adolescent Literacy Programs. *Education and Treatment of Children*, 36, 161-184.
- MATHEIS, M., MATSON, J. L., HONG, E. & CERVANTES, P. E. 2019. Gender Differences and Similarities: Autism Symptomatology and Developmental Functioning in Young Children. *Journal of Autism and Developmental Disorders*, 49, 1219-1231.
- MCCAULEY, R. J. 2001. *Assessment of Language Disorders in Children*, New York, Psychology Press.
- *MCCLAIN, M., HAVERKAMP, C., BENALLIE, K., SCHWARTZ, S. & SIMONSMEIER, V. 2021. How Effective Are Reading Comprehension Interventions for Children With ASD? A Meta-Analysis of Single-Case Design Studies. *School Psychology*, 36, 107-121.
- *MCCLAIN, M. B., OTERO, T. L., HAVERKAMP, C. R. & MOLSBERRY, F. 2018. Autism spectrum disorder assessment and evaluation research in 10 school psychology journals from 2007 to 2017. *Psychology in the Schools*, 55, 661-679.
- *MCCLURE, E. B., PENNINGTON, R. C. & BEWLEY, S. C. 2024. Evaluating the Evidence-Base Supporting Writing Instruction Strategies for Students With Autism Spectrum Disorder: A Systematic Review of Experimental Research. *Focus on Autism and Other Developmental Disabilities*, 39, 139-149.
- MCINTOSH, K. & GOODMAN, S. 2016. *Integrated Multi-Tiered Systems of Support: Blending RTI and PBIS*.

- MCINTYRE, N. S., SOLARI, E. J., GONZALES, J. E., SOLOMON, M., LERRO, L. E., NOVOTNY, S., OSWALD, T. M. & MUNDY, P. C. 2017. The Scope and Nature of Reading Comprehension Impairments in School-Aged Children with Higher-Functioning Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, 47, 2838-2860.
- MERRELL, K. W. 2011. *Social emotional assets and resilience scales*, Lutz, PAR.
- *MIGUEL CRUZ, A., RIOS RINCON, A.M., RODRIGUEZ DUEÑAS, W.R., QUIROGA TORRES, D.A. AND BOHÓRQUEZ-HEREDIA, A.F., 2017. What does the literature say about using robots on children with disabilities?. *Disability and Rehabilitation: Assistive Technology*, 12(5), pp.429-440.
- *MORSE, T. E. 2022. Simultaneous Prompting and Students with Autism. Procedural Guidance for Teachers from a Review of the Literature. *Education and Training in Autism and Developmental Disabilities*, 57, 44-66.
- MUKHERJEE, D., BHAVNANI, S., LOCKWOOD ESTRIN, G., RAO, V., DASGUPTA, J., IRFAN, H., CHAKRABARTI, B., PATEL, V. & BELMONTE, M. K. 2022. Digital tools for direct assessment of autism risk during early childhood: A systematic review. *Autism*, 28, 6-31.
- NATION, K., CLARKE, P., WRIGHT, B. & WILLIAMS, C. 2006. Patterns of reading ability in children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 36, 911-9.
- NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE 2017. Autism spectrum disorder in under 19s: recognition, referral and diagnosis.
- NATIONAL READING PANEL, N. I. O. C. H. H. D. 2000. Report of the National Reading Panel: Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups. United States: National Institute of Child Health and Human Development.
- NORBURY, C. & NATION, K. 2011. Understanding variability in reading comprehension in adolescents with autism spectrum disorders: Interactions with language status and decoding skill. *Scientific Studies of Reading*, 15, 191-210.
- PLAVNICK, J. B., MARCHAND-MARTELLA, N. E., MARTELLA, R. C., THOMPSON, J. L. & WOOD, A. L. 2015. A Review of Explicit and Systematic Scripted Instructional

- Programs for Students with Autism Spectrum Disorder. *Review Journal of Autism and Developmental Disorders*, 2, 55-66.
- POLLOCK, N. 2009. Sensory integration: A review of the current state of the evidence. *Occupational Therapy Now*, 11, 6-10.
- *PONTIKAS, C. M., TSOUKALAS, E. & SERDARI, A. 2022. A map of assistive technology educative instruments in neurodevelopmental disorders. *Disability and Rehabilitation: Assistive Technology*, 17, 738-746.
- PRINCE-EMBURY, S. 2008. The Resiliency Scales for Children and Adolescents, Psychological Symptoms, and Clinical Status in Adolescents. *Canadian Journal of School Psychology*, 23, 41-56.
- *REUTEBUCH, C. K., EL ZEIN, F. & ROBERTS, G. J. 2015. A systematic review of the effects of choice on academic outcomes for students with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 20, 1-16.
- RICKETTS, J., JONES, C. R., HAPPE, F. & CHARMAN, T. 2013. Reading comprehension in autism spectrum disorders: the role of oral language and social functioning. *Journal of Autism and Developmental Disorders*, 43, 807-16.
- RIVET, T. T. & MATSON, J. L. 2011. Review of gender differences in core symptomatology in autism spectrum disorders. *Research in Autism Spectrum Disorders*, 5, 957-976.
- ROBERTSON, C. E. & BARON-COHEN, S. 2017. Sensory perception in autism. *Nature Reviews Neuroscience*, 18, 671-684.
- *ROOT, J. R., INGELIN, B. & COX, S. K. 2021. Teaching Mathematical Word Problem Solving to Students with Autism Spectrum Disorder: A Best-Evidence Synthesis. *Education and Training in Autism and Developmental Disabilities*, 56, 420-436.
- *ROOT, J.R., STEVENSON, B.S., DAVIS, L.L., GEDDES-HALL, J. AND TEST, D.W., 2017. Establishing computer-assisted instruction to teach academics to students with autism as an evidence-based practice. *Journal of Autism and Developmental Disorders*, 47(2), pp.275-284.
- ROSENSHINE, B. 1987. Explicit Teaching and Teacher Training. *Journal of Teacher Education*, 38, 34-36.
- *ROTH, M.E., GILLIS, J.M. AND DIGENNARO REED, F.D., 2014. A meta-analysis of behavioral interventions for adolescents and adults with autism spectrum disorders. *Journal of Behavioral Education*, 23(2), pp.258-286.

- RUPPAR, A. L. 2017. "Without being able to read, what's literacy mean to them?": Situated beliefs about literacy for students with significant disabilities. *Teaching and Teacher Education*, 67, 114-124.
- RUTTER, M., BAILEY, A., LORD, C. 2003. *The social communication questionnaire*, Los Angeles, CA., Western Psychological Services.
- *SEKOSOFF, G. 2015. Developing Reading Comprehension Skills in High-Functioning Children With Autism Spectrum Disorder: A Review of the Research, 1990–2012. *Reading & Writing Quarterly*, 32, 1-24.
- SHEA, B. J., REEVES, B. C., WELLS, G., THUKU, M., HAMEL, C., MORAN, J., MOHER, D., TUGWELL, P., WELCH, V., KRISTJANSSON, E. & HENRY, D. A. 2017. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *British Medical Journal*, 358, j4008.
- *SINGH, B. D., MOORE, D. W., FURLONGER, B. E., ANDERSON, A., FALL, R. & HOWORTH, S. 2021. Reading Comprehension and Autism Spectrum Disorder: a Systematic Review of Interventions Involving Single-Case Experimental Designs. *Review Journal of Autism and Developmental Disorders*, 8, 3-21.
- SNOWLING, M. J. & MELBY-LERVÅG, M. 2016. Oral language deficits in familial dyslexia: A meta-analysis and review. *Psychology Bulletin*, 142, 498-545.
- *SPENCER, V. G., EVMENOVA, A. S., BOON, R. T. & HAYES-HARRIS, L. 2014. Review of Research-Based Interventions for Students with Autism Spectrum Disorders in Content Area Instruction: Implications and Considerations for Classroom Practice. *Education and Training in Autism and Developmental Disabilities*, 49, 331-353.
- STONE, W. L., LEE, E. B., ASHFORD, L., BRISSIE, J., HEPBURN, S. L., COONROD, E. E. & WEISS, B. H. 1999. Can autism be diagnosed accurately in children under 3 years? *Journal of Child Psychology and Psychiatry*, 40, 219-26.
- STRAIN, P. S. & FOX, J. J. 1981. Peer social initiations and the modification of social withdrawal: A review and future perspective. *Journal of pediatric psychology*, 6, 417-433.
- STRAIN, P. S., KERR, M. M. & RAGLAND, E. 1979. Effects of peer mediated social initiations and prompting/reinforcement procedures on the social behavior of autistic children. *Journal of autism and developmental disorders*, 9, 41-54.

- SUGDEN, D. A. 2006. *Development Coordination as a Specific Learning Difficulty* [Online]. Available: https://www.pearsonclinical.co.uk/content/dam/school/global/clinical/uk-clinical/files/LeedsConsensus06-movement-abc_2.pdf?srsId=AfmBOoovQInIsdjliCypqpY-mFoewmU-WIOUsGxMs1xJxaatVHYsuvGF [Accessed 25/04/25].
- SULU, M. D., MARTELLA, R. C., TOPER, O., MARCHAND-MARTELLA, N. E. & KIYAK, U. E. 2021. Explicit and Systematic Scripted Instructional Programs for Students with Autism Spectrum Disorder: An Updated and Extended Review. *Review Journal of Autism and Developmental Disorders*, 10, 203-219.
- SUMNER, E., CONNELLY, V. & BARNETT, A. L. 2016. The Influence of Spelling Ability on Vocabulary Choices When Writing for Children with Dyslexia. *Journal of Learning Disabilities*, 49, 293-304.
- TAGER-FLUSBERG, H. & DOMINICK, K. C. 2011. Comorbid disorders. In: HOLLANER, E., KOLEVZON, A., COYLE, J. T., (ed.) *Textbook of Autism Spectrum Disorders*. Arlington: American Psychiatric Publishing Inc.
- TAVASSOLI, T., HOEKSTRA, R. A. & BARON-COHEN, S. 2014. The Sensory Perception Quotient (SPQ): development and validation of a new sensory questionnaire for adults with and without autism. *Molecular Autism*, 5, 29.
- *TIPTON-FISLER, L. A. & KNIGHT, E. 2024. A Review of Group Design Studies of Reading Comprehension Interventions for Students with ASD. *Contemporary School Psychology*, 28, 144-156.
- *WASS, S. V. & PORAYSKA-POMSTA, K. 2014. The uses of cognitive training technologies in the treatment of autism spectrum disorders. *Autism*, 18, 851-71.
- WHITBY, P. & MANCIL, R. 2009. Academic achievement profiles of children with high functioning autism and Asperger syndrome: A review of the literature. *Education and Training in Developmental Disabilities*, 44, 551-560.
- WHITE, S. W., OSWALD, D., OLLENDICK, T. & SCAHILL, L. 2009. Anxiety in children and adolescents with autism spectrum disorders. *Clinical Psychology Review*, 29, 216-229.
- WILD, G. & STEELEY, S. L. 2018. A Model for Classroom-Based Intervention for Children with Sensory Processing Differences. *International Journal of Special Education*, 33, 745-765.

- WITMER, S. E. & FERRERI, S. J. 2014. Alignment of Instruction, Expectations, and Accountability Testing for Students With Autism Spectrum Disorder. *Focus on Autism and Other Developmental Disabilities*, 29, 131-144.
- WOLERY, M., HOLCOMBE, A., CYBRIWSKY, C., DOYLE, P. M., SCHUSTER, J. W., AULT, M. J. & GAST, D. L. 1992. Constant time delay with discrete responses: a review of effectiveness and demographic, procedural, and methodological parameters. *Research in Developmental Disabilities*, 13, 239-66.
- WONG, C., ODOM, S. L., HUME, K. A., COX, A. W., FETTIG, A., KUCHARCZYK, S., BROCK, M. E., PLAVNICK, J. B., FLEURY, V. P. & SCHULTZ, T. R. 2015. Evidence-Based Practices for Children, Youth, and Young Adults with Autism Spectrum Disorder: A Comprehensive Review. *Journal of Autism and Developmental Disorders*, 45, 1951-1966.
- WORLD HEALTH ORGANISATION 2007. *International Classification of Functioning, Disability, and Health: Children & Youth Version: ICF-CY*, World Health Organization.
- *WRIGHT, J.C., KNIGHT, V.F. AND BARTON, E.E., 2020. A review of video modeling to teach STEM to students with autism and intellectual disability. *Research in Autism Spectrum Disorders*, 70, p.101476.
- YATES, K. & LE COUTEUR, A. 2016. Diagnosing autism/autism spectrum disorders. *Paediatrics and Child Health*, 26.
- *YEE, T., MAGILL-EVANS, J., ZWAIGENBAUM, L., SACREY, L.-A. R., ASKARI, S. & ANABY, D. 2017. Participation Measures for Preschool Children with Autism Spectrum Disorder: a Scoping Review. *Review Journal of Autism and Developmental Disorders*, 4, 132-141.
- *YEUNG, L. H. J. & THOMACOS, N. 2020. Assessments of sensory processing in infants and children with autism spectrum disorder between 0–12 years old: A scoping review. *Research in Autism Spectrum Disorders*, 72, 101517.
- *YORKE, A. M., CARON, J. G., PUKYS, N., STERNAD, E., GRECOL, C. & SHERMAK, C. 2021. Foundational Reading Interventions Adapted for Individuals Who Require Augmentative and Alternative Communication (AAC): a Systematic Review of the Research. *Journal of Developmental and Physical Disabilities*, 33, 537-582.

ZHAO, M. & CHEN, S. 2018. The Effects of Structured Physical Activity Program on Social Interaction and Communication for Children with Autism. *BioMed Research International*, 2018, 1825046.



Department
for Education

© Department for Education Copyright 2025

This publication is licensed under the terms of the Open Government Licence v3.0, except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3.

Where we have identified any third-party copyright information you will need to obtain permission from the copyright holders concerned.

Reference: RR1551

ISBN: 978-1-83870-702-6

For any enquiries regarding this publication, contact www.gov.uk/contact-dfe.

This document is available for download at www.gov.uk/government/publications.