

4. ATTAINMENT LEVEL DESCRIPTIONS

These levels outline eight levels of attainment from Attainment Level 1 to Attainment Level 8 up to Level Descriptor 2 for Science.

- The Attainment Levels for A1 to A3 are common across all subjects. They outline the types and range of general performance that some students with IEN might characteristically demonstrate. Subject-focused examples are included to illustrate some of the ways in which teachers might identify attainment in different subject contexts.
- From level A4 to A8, it is possible to describe students' performance in a way that indicates the emergence of skills, knowledge and understanding in Science.
- Level Descriptors 1 and 2 are based directly on the National Minimum Curriculum for Science.

At the time of publication, the Supplement writing team was aware that the Mainstream school Level Descriptors started to be re designed and new ones were in process of being written. The set of Level Descriptors in this supplement reflect the existing official ones at Level Descriptor 1 and 2. The Levels A1 to A8 are fine. Over the coming year/s the full set of Level Descriptors may be revised in their entirety.

4.1 Strand Attainment Levels

There are two main uses of Strand Attainment Levels; one is to inform differentiated learning outcomes and the other is to inform school developmental planning.

4.1.1 Informing differentiated learning outcomes

The attainment levels can be used by teachers to:

- decide which description best fits a students' performance over a period of time and in different contexts
- develop or support more focused day-to-day approaches to ongoing teacher assessment by using the descriptions to refine and develop long-, medium-, and short-term planning
- track linear progress towards attainment at National Level Descriptor 1
- identify lateral progress by looking for related skills at similar levels across the subjects.

4.1.2 Informing school developmental planning

The attainment levels can also be used to inform school developmental planning annually. They will be used to assess groups of students and to evaluate where resources need to be placed in future to improve the quality of the Science teaching and learning.

4.2 Attainment descriptions for Science

These outline the types and range of general performance that students with IEN might characteristically demonstrate. Subject focused examples are included to illustrate some of the ways in which staff might identify attainment in different subject contexts. The attainment description indicates the emergence of skills, knowledge and understanding in Science.

4.2.1 Attainment descriptions across subjects

A1(i) Students encounter activities and experiences. They may be passive or resistant. They may show simple reflex responses, e.g. *startling at sudden noises or movements*. Any participation is fully prompted.

A1(ii) Students show emerging awareness of activities and experiences. They may have periods when they appear alert and ready to focus their attention on certain people, events, objects or parts of objects, e.g. *looking towards flashes of light or turning towards loud sounds*. They may give intermittent reactions, e.g. *sometimes withdrawing their hands from changes in temperature*.

A2(i) Students begin to respond consistently to familiar people, events and objects. They react to new activities and experiences, e.g. *discarding objects with unfamiliar textures*. They begin to show interest in people, events and objects, e.g. *leaning forward to follow the scent of a crushed herb*. They accept and engage in coactive exploration, e.g. *feeling materials in hand-over-hand partnerships with a member of staff*.

A2(ii) Students begin to be proactive in their interactions. They communicate consistent preferences and affective responses, e.g. *showing a consistent dislike for certain flavours or textures*. They recognise familiar people, events and objects, e.g. *moving towards particular features of familiar environments*. They perform actions, often by trial and improvement, and they remember learned responses over short periods of time, e.g. *rejecting food items after recent experience of bitter flavours*. They cooperate with shared exploration and supported participation, e.g. *examining materials handed to them*.

A3(i) Students begin to communicate intentionally. They seek attention through eye contact, gesture or action. They request events or activities, e.g. *reaching out towards a sound making object*. They participate in shared activities with less support. They sustain concentration for short periods. They explore materials in increasingly complex ways, e.g. *pressing hard objects into soft textures*. They observe the results of their own actions with interest, e.g. *scrunching up paper and examining the product*. They remember learned responses over more extended periods, e.g. *reaching out to touch a live animal with caution and sensitivity*.

A3(ii) Students use emerging conventional communication. They greet known people and may initiate interactions and activities, e.g. *switching on a favourite piece of equipment in the light and sound room*. They can remember learned responses over increasing periods of time and may anticipate known events, e.g. *balls falling and bouncing on the floor*. They may respond to options and choices with actions or gestures, e.g. *touching one substance rather than another*. They actively explore objects and events for more extended periods, e.g. *feeling the textures of different parts of a plant*. They apply potential solutions systematically to problems, e.g. *tipping a container in order to pour out its contents*.

4.2.2 Attainment descriptions for the Biological Aspect

A4: Students imitate actions involving main body parts, *e.g. clapping or stamping*. They make sounds using their own bodies, *e.g. tapping, singing or vocalizing and imitate or copy sounds*. They show interest in a wide range of living things, handling and observing them, *e.g. collecting items on a visit to Buskett*.

A5: Students anticipate and join in activities focused on enquiry into specific environments, *e.g. finding a hamster under the straw or worms in a wormery*. They answer simple scientific questions, *e.g. where is the flower?*

A6: Students explore objects and materials provided in an appropriate way. They recognise features of objects, *e.g. features of living things in their environment*, knowing where they belong, *e.g. eyes on face, leaves on a tree*. They consistently sort materials according to given criteria when the contrast is obvious.

A7: Students join in scientific investigations. They understand some simple scientific vocabulary and can communicate related ideas and observations using simple phrases, *e.g. indicate which foods to give to which animal*. They begin to record their findings.

A8: Students explore and observe similarities, differences, patterns and change in features of objects, things and events. They begin to make their own contributions to planning and evaluations and to recording their findings in different ways.

LD1: Students become familiar with a variety of living things in the environment. They are able to recognise different parts of the human body and are aware of the five sense.

LD2: Students are able to observe that there are similarities and differences between living things. They are able to identify that living things have specific adaptations to their environment. They are able to observe changes in weather conditions and their effects on living things.

5.2.3 Attainment descriptions for the Physical Aspect

A4: Students explore and observe changes in light, sound or movement that result from actions, *e.g. switching on a torch*. Students cause movement by pushing or pulling objects, *e.g. a wheelbarrow or a wheelchair*.

A5: Students engage in experimentation with a range of equipment in familiar and relevant situations, *e.g. initiating the activation of a range of light sources*. They answer simple scientific questions, *e.g. is it hot/cold?*

A6: Students begin to make generalisations, connections and predictions from regular experience, *e.g. expecting that ice cream will melt*, or by predicting that wheel objects move faster when pushed harder.

A7: Students actively join in scientific investigations. They observe some of the simple properties of light sound and movement *e.g. shadows, volume and speed*. They begin to record their findings, *e.g. pictorially*. Students begin to make suggestions for planning and evaluating their work.

A8 Students identify a range of common materials and know about some of their properties. They sort materials using simple criteria and communicate their observations in terms of these properties. They make their own observations of changes in light, sound, or movement that result from actions, *e.g. when pressing a switch*.

LD1: Students are able to know that a variety of things can move by pushing or pulling. They are able to identify different sources of energy, light, sound, electricity. Learners recognise that our environment is planet earth.

LD2: Students know through observations that different pushes or pulls affect movement. They are aware that energy, like electricity, light or sound can produce different effects. They are able to recognise the importance of the sun in relation to planet earth.

5.2.4 Attainment descriptions for Chemical Aspect

A4: Students explore a range of objects and materials provided. They participate in changing some materials by physical means and observing the outcomes, *e.g. playing with playdough, plasticine*. They know that certain actions produce predictable results, *e.g. sponges can be squeezed*.

A5: Students use their senses to explore and recognise similarities and differences between materials. They group objects and materials in terms of simple features or properties, *e.g. temperature or colour*. They can indicate the before and after of material changes.

A6: Students explore objects and materials in an appropriate way. They consistently sort materials according to given criteria when the contrast is obvious. They closely observe the changes that occur, *e.g. when materials are heated, cooled or mixed*.

A7: Students actively join in scientific investigations. They understand some simple scientific vocabulary. They can communicate related ideas and observations using simple phrases, *e.g. indicate that salt dissolves in water*.

A8: Students explore and observe similarities, differences and features of objects. They sort materials using simple criteria and communicate their observations of materials in terms of these properties.

LD1: Students become familiar with variety of different materials. They are able to identify common materials using their senses. Learners know that materials change over time.

LD2: Students know through observations that materials can be grouped according to their properties and that materials can change due to changes in temperature.

5. OPPORTUNITIES AND ACTIVITIES

5.1 Opportunities at Primary Level

Most of the syllabus of Science at Primary Level is relevant to students with IEN. With modifications, it can provide stimulating and challenging learning opportunities.

The focus of teaching Science at Primary Level may be on giving students opportunities to:

- explore and investigate, through a range of sensory activities which give feedback and generate interest
- engage in practical activities and investigations that extend their awareness and understanding of themselves, *e.g. body awareness and self awareness*
- recognise that they are growing and changing, and to learn about how the body changes in preparation for puberty
- control aspects of their immediate surroundings, *e.g. using forces and electrical circuits or changing materials for a purpose*

Given these opportunities in Science at Primary level:

All students with IEN (including those with the most profound disabilities)

- | |
|---|
| <ul style="list-style-type: none">■ take part in scientific enquiry by exploring people, materials and other living things and respond to sensory experiences;■ continue to develop their experience and understanding of the world by using their senses, observing and exploring;■ take part in investigations about living things, materials and phenomena with appropriate support;■ gain greater awareness of life processes and of themselves as growing and changing individuals. |
|---|

Most students with IEN (including those with severe difficulties in learning) who will develop further skills, knowledge and understanding in most aspects of the subjects
--

- | |
|---|
| <ul style="list-style-type: none">■ are aware that their actions have consequences, <i>e.g. personal cause and effect</i>;■ learn about a wider range of living things, materials and phenomena;■ carry out investigations and collect evidence with help;■ become familiar and with some prompting use some scientific language to answer scientific questions. |
|---|

A Few students with IEN who will develop further aspects of knowledge, skills and understanding in the subject

- record and communicate their ideas and data, *e.g. using drawings, objects, symbols*, and begin to evaluate evidence;
- attempt to answer questions through testing and investigating;
- ask scientific questions, become familiar with some reference sources;
- record their results, *e.g. using objects, symbols, computer software, drawings, charts and diagrams* to communicate what they have done and what happened;
- recognise relevant evidence and evaluate it, draw conclusions from their data, and link their scientific knowledge to their everyday experiences, *e.g. watering plants to grow*.

5.2 Opportunities at Secondary Level

Most of the syllabus of Science at Secondary Level is relevant to students with IEN. With modifications, it can provide stimulating and challenging learning opportunities.

The focus of teaching Science at Secondary Level may be on giving students opportunities to:

- extend their explorations and investigations from the familiar to a wider world
- recognise how science applies to their everyday lives, *e.g. appreciating what makes a healthy lifestyle*
- apply their previous knowledge, skills and experience in new situations
- consider explanations and the causation of things around them, their bodies and events.

Given these opportunities in Science at Secondary level:

All students with IEN (including those with the most profound disabilities)

- extend their scientific experience and awareness through explorations and participation in experiments and investigations appropriate for their age;
- work with support assistants to collect evidence. Staff may need to support them in the use of a wide range of equipment and materials.

Most students with IEN (including those with severe difficulties in learning) will develop further skills, knowledge and understanding in most aspects of the subjects.

- know they need to ask questions about how things work;
- use a range of observations and measurements and different modes of data collection.;
- link their knowledge to their everyday lives, including their personal health and lifestyles;
- with support, communicate what they have done; describe what has happened and draw some conclusions from their data;
- are guided to use different ways of presenting their data, *e.g. charts, diagrams and drawings*;
- recognise some relevant evidence and with verbal and visual prompting, ask some scientific questions.

A Few students with IEN will develop further aspects of knowledge, skills and understanding in the subject.

- make comparisons and recognise significant differences when interpreting the results of tests and investigations;
- communicate their ideas and findings;
- begin to apply their knowledge and understanding of scientific ideas to familiar phenomena and everyday things;
- understand some positive and negative effects of scientific and technological developments;
- make more systematic observations and measurements, apply their scientific knowledge to new situations.