Science at
Almond Hill Junior School
2025-2026

Subject Intent Statement

By the end of Key Stage 2, children at Almond Hill will understand that science is everywhere in the world around them.

As stated in the National Curriculum, children will have a secure knowledge in a broad range of scientific fields including biological, chemical and physical processes in addition to the environmental influences of our world.

Children will learn to work scientifically, which includes: applying ideas, raising questions and planning investigations. Children will also use the enquiry skills which are: fair testing, research, observation over time, pattern seeking and classification.

At Almond Hill we intend to develop children's natural curiosity so they follow their own lines of enquiry and furthermore foster a love and appreciation for science.

Implementation

Science is taught regularly with a view to 2 hours of weekly input some of which may be cross curricular. A range of topics are taught, and many are re-visited in both the lower and upper key stage with a focus on different content to ensure a progression of understanding and skills. The school has developed scientific principles that are referred to and discussed in every lesson (via the Pink Slips).

These are:

- Let's investigate
- I've seen this before
- Children ask questions
- Science is fun
- Teamwork

Curriculum Development

We are continuing to embed 'Post-it Planning' to support our scientific investigation skills (see Appendix 1 for resources). The process helps the children to:

- Creatively think about **variables** they could explore and measure in relation to the topic area.
- The importance of **fair testing** and understanding why some variables need to be kept the same to help them explore their research question.
- Understand how the **prediction** links to the variables they are testing and their broader subject knowledge relating to the topic.

The resources have been shared across the school and trialled in various parts of the Science curriculum. We have developed a scaffolded approach to the 'Post-it Planning' planner to enable all learners to successfully conduct a science investigation. Pupils are also effectively supported and scaffolded when completing the 'writing up' stage of an investigation.

Assessment

In line with the end of Key Stage 2 assessment in Year 6, we have decided to assess pupils in Science as either working towards the expected standard (WTS) or meeting the expected standard (EXS) in every year group.

Topics/Units Across the Key Stage

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
3	**Forces**: Push/pull, friction & magnets	**Rocks, fossils & soil formation**	**Animals including Humans:** Diet, skeletons & muscles	***British Science Week***	**Plants:** Parts of a plant & their functions	**Light:** Light & dark, the sun & shadows
4	**Sound:** Vibration, pitch and volume.	**Electricity:** Simple circuits, conductors & insulators	**States of Matter:** Solids, liquids & gases	***British Science Week***	**Animals including Humans**: Teeth & digestion	**Living things and their Habitats:** Classification & food chains
5	**Forces:** Gravity, resistance/ friction & mechanisms	**Earth and Space:** Movement & the solar system *(links to School Trip to the Space Centre)*	**Materials and their properties** (including changes to properties)	***British Science Week***	**Living things and their Habitats/Animals including Humans:** Life cycles of plants and animals including reproduction	
6	**Evolution and Inheritance**, including fossils & adaptations	**Living things and their Habitats:** Classification & micro-organisms	**Animals including Humans:** Circulatory system & the impact of diet/lifestyle on its function	***British Science Week***	**Light:** How light travels & reflection	**Electricity:** Circuit diagrams, circuit components & voltage

Progression of skills

*Part 1 – Working Scientifically**

Whole School Skills			
		Year 3/4	Year 5/6
Working Scientifically	Asking Questions	• Ask relevant questions and use different types of scientific enquiries to answer them • Set up simple practical enquiries, comparative and fair tests	**Year 3 / 4 plus:** • Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
	Measuring and recording	• Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Gather, record, classify and present data in a variety of ways to help in answering questions	**Year 3 / 4 plus:** • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
	Concluding	• Identify differences, similarities or changes related to simple scientific ideas and processes • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Use straightforward scientific evidence to answer questions or to support their findings	**Year 3 / 4 plus:** • Identify scientific evidence that has been used to support or refute ideas or arguments • Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
	Evaluating	• Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	**Year 3 / 4 plus:** • Use test results to make predictions to set up further comparative and fair tests

* Adapted from HfL Assessment Criteria for Working Scientifically Skills Overview (2016) / National Curriculum

Part 2 – Scientific Knowledge*

Red statements are National Curriculum Objectives or key expectations for Scientific Knowledge in the specific area of study.

Whole School Skills				
	Year 3	**Year 4**	**Year 5**	**Year 6**
Animals including Humans	**WTS:** ***1. Identify some foods needed for a healthy and varied diet*** 2. Know they have bones and muscles in their body 3. State that they and other animals have skeletons ***4. Identify animals that do not have an internal skeleton (invertebrates)*** 5. Group animals with and without an internal skeleton 6. Recognise that their skeletons grow as they grow. **ARE:** 1. Name the components of a healthy and varied diet. 2. Describe how their diet is balanced ***3. Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat*** 4. Describe some observable characteristics of bones ***5. Describe the main functions of their skeletons*** 6. State that movement depends on both skeleton and muscles 7. state that when one muscle	**WTS:** ***1. Identify a wider range of body parts, including some internal organs (large intestine, small intestine, brain, lungs, heart, stomach, oesophagus)*** 2. Locate and name the different organs in the digestive system 3. Recognise they need to take care of their teeth ***4. Name the different types of teeth*** **ARE:** ***1. Describe the role of each organ in the digestive system*** ***2. Describe the simple functions of the basic parts of the digestive system in humans*** 3. Describe the role of each type of teeth in digestion ***4. Identify the different types of teeth in humans and their simple functions*** 5. Explain how they should look after their teeth and recognise why they need to do so 5. State that animals have different diets and may have different kinds of teeth	**WTS:** 1. Identify ways in which the appearance of humans changes as they get older 2. Identify some characteristics that will not change with age 3. Recognise stages in growth and development of humans including puberty **ARE:** **1.** ***Describe the changes as humans develop to old age***	**WTS:** 1. Identify and name the parts of the circulatory system 2. Know that the heart is made of muscle 3. State how to measure pulse rate 4. Recognise that pulse rate is a measure of how fast the heart is beating 5. Identify some of the harmful effects of smoking 6. Identify food as a fuel for the body **ARE**: **1.** ***Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood*** ***2. Describe what the heart and blood vessels do*** 3, Discover that during exercise the heart beats faster to take blood more rapidly to the muscles 4. Make careful measurements of pulse rate 5. Describe the different functions of the blood (e.g. transporting and protecting)

	contracts another relaxes ***8. Identify that humans and some other animals have skeletons and muscles for support, protection and movement***			***6. Know that the blood comes from the heart in arteries and returns to the heart in veins*** 7. Know that blood carries oxygen and other essential materials around the body ***8. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.*** ***9. Describe the ways in which nutrients and water are transported within animals, including humans*** 10. Recognise that care needs to be taken with medicines and that they can be dangerous 11. Give several reasons why it is sometimes necessary to take medicines 12. Identify some harmful effects of drugs. 13. Name the major groups into which food is categorised and identify sources for each group describe the main function of organs of the human body

Living things and their Habitats		**WTS:** 1. Recognise that animals can be grouped into vertebrates and invertebrates 2. Identify that some animals feed on other animals and some on plants 3. Explore ways of grouping living things including animals and plants (flowering and non-flowering) 4. Represent feeding relationships with simple food chains **ARE:** ***1. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment*** ***2. Recognise that living things can be grouped in a variety of ways*** 3. Describe some of the characteristics of the vertebrate (fish, mammals, amphibians, reptiles and birds) groups (e.g. warm-blooded, have fur, lay eggs) 4. Group animals into vertebrate (fish, mammals, amphibians, reptiles and birds) and invertebrates groups (snails, slugs, spiders, worms and insects) 5. Recognise that green plants are the ultimate source of food for all animals 6. Recognise that a food chain must always start with a green plant (a producer) 7. Represent feeding relationships within a habitat with food chains beginning with a green plant which 'produces' food for the other organisms 8. Use and understand the terms:	**WTS:** ***1. sequence the life cycles of a variety of plants and animals*** 2. name the parts of a flower 3. name the parts of the human reproductive system **ARE:** 1. Recognise the similarities in the life cycles of plants, animals and humans ***2.Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird*** 3. Describe the functions of some parts of a flower 4. Describe the main functions of parts of a plant involved in reproduction 5. Describe the processes of sexual and asexual reproduction in plants 6. Describe the simple functions of parts of the human reproductive system ***7. Describe the life process of reproduction in some plants and animals*** 8. Compare methods of seed dispersal 9. Know that most animals reproduce by sexual reproduction	**WTS:** 1. Recognise that there is a wide variety of living things 2. Identify vertebrates and invertebrates 3. Name and describe the five vertebrate groups 4. Understand there are living things that are too small to be seen and these can affect our lives 5. Recognise that there are many micro-organisms, some which can cause illness or decay **ARE:** 1. understand why classification is important ***2. Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals*** ***3. Give reasons for classifying plants and animals based on specific characteristics*** ***4. Recognise that there are useful micro-organisms which can be used in food production*** 5. Describe how micro-organisms feed, grow and reproduce like other organisms ***6. Describe evidence, from***

		producer, predator and prey ***9. Construct and interpret a variety of food chains, identifying producers, predators and prey*** 10. Know the function of some of the more complex features which aid survival in specific habitats (e.g. gills, blubber, camouflage) 11. Describe why different animals and plants live in different habitats ***12. Recognise that environments can change and that this can sometimes pose dangers to living things*** 13. Describe how humans can cause changes to environments explain that different organisms are found in different habitats because of differences in environmental factors		***investigations, that yeast is living*** 7. Explain how micro-organisms can move from one food source to another or from one animal to another

Plants	**WTS:** ***1. Identify parts of flowering plants*** ***2. Recognise that plants need light, water and warmth and healthy leaves, roots and stems in order to grow well*** 3. Know that plants make their own food 4. Know that water travels from the roots up the stem 5. Sequence pictures to show the life cycle of a plant **ARE:** ***1. Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers*** 2. Describe why healthy roots and a healthy stem are needed for plants to grow 3. Recognise that the leaves of a plant are associated with healthy growth and more specifically nutrition 4. Know that fertilisers contain minerals 5. Understand that plants absorb minerals from the soil (Teacher Note: plants create their own food using sunlight, water and carbon dioxide, they do not absorb food from the soil) 6. Describe how changes to light and fertiliser affect plant growth			

	7. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant ***8. Investigate the way in which water is transported within plants*** 9. Describe how the stem has a role in support and nutrition (transport of water) ***10. Describe why plants need flowers*** 11. Describe the role of bees and insects in pollination 12. Describe how pollen and seeds are dispersed ***13. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal***			

Light	**WTS:** 1. Name a number of light sources, including the sun 2. Recognise that they cannot see in the dark 3. State that reflections can be seen in shiny surfaces 4. Makes generalisations about shiny surfaces (e.g. smooth) 5. Recognise that light travels from a source 6. Recognise that when light is blocked, a shadow is formed 7. Make observations of changes in shadows **ARE:** 1. Describe and compare some light sources 2. State that light sources are seen when light from them enters the eyes ***3. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes*** ***4. Recognise that they need light in order to see things and that dark is the absence of light*** 5. Explain that places are dark because there is no light and a light source is needed to help us see in such places ***6. Notice that light is reflected from surfaces*** 7. Demonstrate light travelling using			**WTS:** 1. Describe reflection as light 'bouncing off' objects 2. Explore how light travels using torches and periscopes **ARE:** 1. Understand that in order to be seen, all non-luminous objects must reflect light ***2. Recognise that light appears to travel in straight lines*** 3. Diagrammatically represent light from sources and bouncing off reflective surface using arrows ***4. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes*** 5. Draw diagrams to illustrate how light is travelling from the source to the eye ***6. Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye*** 7. Describe a variety of ways of changing the size of the shadow produced by an object 8. Describe the relationship between the size of a shadow and the distance between the

	a torch and record light bouncing off a mirror 8. Identify suitable reflective clothing for travelling in the dark 9. Explain that they cannot see shiny objects in the dark because there are no light sources ***10. Recognise that shadows are formed when the light from a light source is blocked by a solid object*** 11. Recognise that shadows are similar in shape to the objects forming them 12. Explain that shadows are formed when light from a source is blocked 13. State that even transparent objects block some light and form shadows 14. Describe the difference in shadows cast by opaque, translucent and transparent materials 15. Explore how to make shadows of different shapes and sizes ***16. Find patterns in the way that the size of shadows change***			light source and an object 9. Diagrammatically represent the formation of shadows using arrow convention ***10. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them***

Forces (and Magnets)	**WTS:** ***1. Recognise that pushes and pulls are forces*** 2. Recognise that a force acts in a particular direction 3. Observe the movements, shape and direction of objects when forces act on them 4. Identify friction as a force 5. Observe and explore how friction affects the movement of objects 6. Classify materials as magnetic or non-magnetic 7. Recall that magnets have a north and a south pole **ARE:** 1. Describe how to make a familiar object start moving by pushing or pulling 2. Describe how to use pushes and pulls to make familiar objects speed up, slow down, change direction or shape 3. Produce annotated drawings showing the direction of force needed to make an object move 4. Describe some ways in which friction between solid surfaces can be increased or decreased ***5. Compare how things move on different surfaces*** ***6. Observe how magnets attract or repel each other and attract some materials and not others***		**WTS:** 1. Identify that force is measured in Newtons ***2. Name simple forces such as gravity, friction and air resistance*** 3. Recognise that more than one force can act on an object ***4. Recognise that air resistance slows things down*** 5. Recognise that friction can be useful or not useful **ARE:** 1. Identify weight as a force 2. Draw force diagrams with arrows showing the direction of forces acting on an object 3. Observe and explore the effect of several forces on objects ***4. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces*** 5. Describe some situations in which there is more than once force acting on an object 6. Describe and explain the motion of some familiar objects in terms of several forces acting on them 7. 1dentify forces on an object as either balanced or unbalanced 8. Use the terms 'balanced' and unbalanced' when describing several forces on an object 9. Explain that balanced forces on an object cause it to remain stationary or	

	7. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials 8. Describe the difference between a magnet and a magnetic material 9. Describe what happens when some materials are put near a magnet ***10. Notice that some forces need contact between two objects, but magnetic forces can act at a distance*** 11. Recall that magnets have a north and a south pole ***12. Describe magnets as having two poles*** 13. Describe the direction of forces between magnets ***14. Predict whether two magnets will attract or repel each other, depending on which poles are facing***		travel at the same speed 10. Explain that unbalanced forces on an object cause it to speed up, change shape or slow down ***11. Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object*** 12. Understand that air resistance is the frictional force of air on objects moving through it 13. Describe some of the factors that increase friction between solid surfaces and increase air and water resistance 14. Describe situations in which frictional forces are helpful as well as those in which frictional forces are unhelpful 15. Explore the effects of levers, pulleys and gears ***16. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect***	
Materials (Rocks, fossils and soils, states or matter, properties and changes)	***ROCKS, FOSSILS AND SOILS*** **WTS:** ***1. Observe the characteristics of a variety of rocks*** ***2. Name and describe the characteristics of several rocks*** 3. Identify fossils in rocks 4. Understand that there are rocks under the Earths' surface	***STATES OF MATTER*** **WTS:** 1. Name some solids and liquids 2. State that air is a gas ***3. State some differences between solids, liquids and gases*** 4. Observe what happens to a variety of materials when they are heated (e.g. chocolate, ice cream, butter, water)	***MATERIALS AND THEIR PROPERTIES*** **WTS:** 1. Observe and explore the properties of materials (e.g. hardness, transparency, magnetism, electrical and thermal conductivity) 2. Identify some materials that are good thermal insulators and some everyday uses of these	

	5. Recognise that soil is a mixture of different materials and living things **ARE:** ***1. Classify rocks from the evidence of investigations*** ***2. Explain that rocks are used for different purposes dependent on their physical properties*** 3. Explain that different types of rock react differently to physical forces (e.g. water, rubbing) ***4. Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties*** ***5. Describe in simple terms how fossils are formed when things that have lived are trapped within rock*** 6. Recognise that soil contains dead plants and animals 7. Recognise that there is rock under all surfaces ***8. Recognise that soils are made from rocks and organic matter***	5. Describe what happens to water when it is heated and cooled ***6. State that ice, water and steam are the same material*** **ARE:** 1. Recognise everyday substances as solids, liquids and/or gases 2. Recognise that air is a material and that it is one of a range of gases which have important uses 3. Know that gases can be easily compressed 4. Describe the differences between solids and liquids 5. Compare simple solids and liquids (e.g. in terms of ease of squashing or pouring) ***6. Compare and group materials together, according to whether they are solids, liquids or gases*** 7. Make clear distinctions between the properties of solids, liquids and gases 8. Identify a wide range of contexts in which changes of state take place 9. Describe a few examples where these changes occur 10. Recognise that for a substance to be detected by smell, some of it must be in the gas state ***11. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)*** 12. Describe how when ice melts it turns to liquid and how when water freezes it becomes ice	3. Recognise that dissolving is a reversible change 4. Recognise that changes of state are reversible 5. Recognise the hazards of burning materials **ARE:** 1. Suggest why particular materials are used for different jobs depending on their properties ***2. Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets*** ***3. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic*** 4. Describe melting and dissolving and give everyday examples of each 5. Separate an undissolved solid from a liquid by filtering 6. Recognise that an undissolved solid can be separated from liquid by filtering 7. Recognise that a solid can be recovered from a solution by evaporation 8. Describe the properties of mixtures which can be separated by filtration 9. Describe some methods that are used to separate simple mixtures	

		13. Describe how these processes can be reversed 14. Describe how liquids evaporate to form gases and how gases condense to form liquids 15. Describe/sequence the changes that happen in the water cycle 16. Explain the relationship between liquids and solids in terms of melting and freezing 17. Explain the relationship between liquids and gases in terms of evaporation and condensation ***18. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature*** ***19. Know that temperature can affect the rate of evaporation or condensation*** 20. Identify a range of contexts in which changes take place (e.g. evaporation of puddles in the school playground or from clothes on the washing line, condensation in the bathroom)	10. Explain that when solids dissolve they break up so small they can pass through the holes in the filter paper ***11. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution*** ***12. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating*** 13. Recognise that some changes can be reversed and some cannot ***14. Demonstrate that dissolving, mixing and changes of state are reversible changes*** 15. Observe and explore a variety of chemical changes (e.g. burning) 16. Identify whether some changes are reversible or not 17. Classify some changes as reversible (*e.g. dissolving)* and others as irreversible (*e.g. burning*) ***18. Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda*** 19. Explain that in some cases the new materials made are gases and identify some evidence for the production of gases (e.g. vigorous bubbling)	

Evolution and Inheritance				**WTS:** 1. Recognise variation in different species (e.g. dogs, horses) 2. Describe how animals and plants are adapted to their environments ***3. Recognise that animals have to compete for food*** 4. Describe how animals avoid predators (e.g. speed, camouflage) recognise that offspring have some of the features of their parents **ARE:** ***1. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents*** ***2. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution*** 3. Explain how being well adapted to an environment means an organism is more likely to survive ***4. Recognise that living things have changed over time and that fossils provide information about living things that***

				inhabited the Earth millions of years ago 5. Explain why we do not have a complete fossil record
Earth and Space			**WTS:** 1. Identify and name the components of the solar system (i.e. Sun, Moon, Earth and other planets) 2. Locate the Sun, Earth and other planets in the solar system 3. Recognise that the Earth and other planets orbit the Sun 4. Recall that the Earth takes one year to orbit the Sun 5. Recall that the Earth rotates on its' axis and this takes one day 6. Recognise that the Moon orbits the Earth 7. Recall that a shadow from the Sun changes over the course of a day **ARE:** ***1. Describe the movement of the Earth, and other planets, relative to the Sun in the solar system*** ***2. Describe the movement of the Moon relative to the Earth***	

			3. Describe the Sun, Earth and Moon as approximately spherical bodies 4. Recognise that the Earth, Sun and Moon are spherical and support this with some evidence 5. Recognise that it is daylight in the part of the Earth facing the Sun 6. Explore and describe how a shadow from the Sun changes over the course of a day 7. Explain in terms of the rotation of the Earth why shadows change and the Sun appears to move across the sky during the course of the day ***8. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky*** 9. Explain why it is night time in Australia when it is day time in England	

Sound		**WTS:** 1. Recognise and describe many sounds and sound sources 2. State that they hear sounds through their ears ***3. Recognise that when sounds are generated by objects, something moves or vibrates*** 4. Describe differences in pitch and volume describe what they observe when they move further away from a source of sound **ARE:** ***1. Identify how sounds are made, associating some of them with something vibrating*** 2. Identify what is vibrating in a range of musical instruments 3. Generalise that sounds are produced when objects vibrate 4. Describe how sounds are generated by specific objects 5. Suggest ways of producing sounds ***6. Recognise that vibrations from sounds travel through a medium to the ear*** ***7. Find patterns between the pitch of a sound and features of the object that produced it*** 8. Distinguish between pitch and volume (loudness) 9. Know that altering vibrations alters the pitch or volume 10. Suggest how to change the loudness of the sounds produced by a range of musical instruments		

		11. Explore how to vary the pitch and volume of sounds from a variety of objects or instruments ***12. Find patterns between the volume of a sound and the strength of the vibrations that produced it*** ***13. Recognise that sounds get fainter as the distance from the sound source increases*** 14. Describe what they observe when they move further away from the source of a sound		
Electricity		**WTS:** ***1. Identify common appliances that run on electricity*** ***2. Identify mains operated and battery operated devices*** 3. Describe some of the dangers associated with mains electricity 4. Name some components of a simple electrical circuit 5. Know that batteries are sources of electricity 6. Recognise that for a circuit to work it must be complete 7. Construct a working circuit identify materials as conductors or insulators **ARE:** ***1. Construct a simple series electrical circuit, identifying and naming its basic***		**WTS:** 1. Know that the 'amount' of electricity (voltage) depends on the number of batteries 2. Construct some working series circuits with specified components ***3. Recognise conventional circuit symbols*** **ARE:** ***1. Use recognised symbols when representing a simple circuit in a diagram*** 2. Draw circuit diagrams and construct circuits from diagrams using conventional symbols 3. Explore how to change the brightness of bulbs and the volume of a buzzer

		parts, including cells, wires, bulbs, switches and buzzers 2. Make drawings of simple working circuits (pictorial only circuit symbols covered in year 6) 3. Make circuits from drawings provided ***4. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery*** 5. Describe the effect of making and breaking one of the contacts on a circuit 6. Explain why some circuits work and others do not ***7. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit*** 8. Describe how switches work 9. Construct a home-made switch 10. Construct simple circuits and use them to test whether materials are electrical conductors or insulators ***11. Recognise some common conductors and insulators, and associate metals with being good conductors***		4. Recall what causes the brightness of bulbs or the volume of a buzzer to change 5. Compare different circuits (e.g. for brightness of bulb) 6. Recall that the amount of electricity is measured in voltage ***7. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit*** ***8. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches***

* Adapted from HfL Progression in Scientific Knowledge / National Curriculum

Appendix 1: Post it Planning

Investigation Planning Board

I am investigating _____

Science at Almond Hill

Think about the different ways in which you can adapt this investigation. How can you make it fair? Which variables can you change/keep the same? How might you measure and/or observe?

After you have completed the planning board, decide on your investigation question and then "Let's Investigate!" Remember - scientists ask questions…it's good to be curious.

Variables we could change:

Variables we could measure/observe:

We will change:

We will measure/observe:

We will keep these the same…

My investigation question….
How does the _____
affect the _____

When I change:

What will happen to what we are measuring:

Why?

_____

_____

_____