



Northwood Park Primary School

Science Knowledge and Skills Progression -Autumn

By the end of EYFS	By the end of Y1	By end of Y2	By end of Y3	BY end of Y4	By end of Y5	By end of Y6
<u>Autumn 1 – Humans</u> * I can look at photographs of different people and to describe them. *I can describe my friends and family using photographs to help them. *I know how my friends and family are the same and different. * I can talk about the people who look after them, both within their family and the wider community.	<u>Autumn 1 - Animals</u> *I know the name of a variety of amphibians, reptiles, birds, and mammals e.g. A robin is a bird-it has wings. A frog is an amphibian – it lives on land and water. A snake is a reptile – it lays eggs and has scales. A human is a mammal – they have hair and give birth to babies.	<u>Autumn 1 - Everyday Materials</u> *I know the names of everyday materials (wood, metal, plastic, glass, brick, rock, paper cardboard) *I know the properties of materials – as for Year 1 and opaque, transparent and translucent, reflective, nonreflective, flexible, rigid.	<u>Autumn 1 Magnet and Forces</u> *I know that a force is a push or a pull and I can give examples of each. E.g. pushing to close the door or pulling a rope. *I know that when an object moves on a surface the texture of the surface and the object can affect how it moves. – it will allow the object to move better or it may hinder its	<u>Autumn 1 States of Matter</u> *I know a solid keeps its shape and has a fixed volume. *I know a liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level surface. *I know a gas fills all available space; it has no fixed shape or volume	<u>Autumn 1 Forces</u> *I know that a force causes an object to start moving, stop moving, speed up, slow down or change direction. *I know that gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity. This causes unsupported objects to fall. *I know that air resistance, water resistance	<u>Autumn 1 Light</u> *I know/describe using diagrams/models that light appears to travel in straight lines. *I know/describe using diagrams/models that we see objects when light goes into our eyes. P.P *I know that light may come directly from light sources. *I know for some objects light must be reflected from



<u>Classification</u> I can sort images of people according to their characteristics. <u>Researching using secondary sources</u> I can find out information from visitors (dentist, nurse etc).	*I can give examples of variety of animals that are herbivores, omnivores and carnivores. A herbivore only eats plants e.g. sheep only eat plants. A carnivore only eats other animals/meat e.g. a lion A omnivore eats both plants and other animals/meat e.g., humans and most birds such as robins and sparrows. N.B. The children need to be able to name and identify a range of animals in each group e.g. name	*I can identify and compare the suitability of a variety of everyday materials e.g. I know that my water bottle is made of plastic because it is <u>transparent</u> so I can see the drink inside and it is <u>waterproof</u> so that it holds the water. *I can demonstrate how the shapes of solid objects made from some materials can be changed by push/pushing, pull/pulling, squash/squashing, bend/bending, twist/twisting and stretch/ stretching.	movement e.g. a toy car moving down a ramp will move quicker on a smoother surface such as wood and slower on a rougher surface such as sandpaper. *I know that a magnetic force is a non-contact force that can attract magnetic material at a distance. *I know that magnets have two poles – a north pole and a south pole and they are the strongest parts of a magnet are the poles. *I can show (using arrows on	*I know melting is a state change from solid to liquid. *I know freezing is a state change from liquid to solid. The freezing point of water is 0oC. *I know evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. *I know condensation is the change back from a gas to a liquid caused by cooling. I can describe how	and friction are examples of contact forces that act between moving surfaces. *I can give examples of water resistance and air resistance e.g when an aeroplane flies through the air, when an object moves through a fluid e.g. water *I know that an object may be moving through the air or water, or the air and water may be moving over a stationary object. *To make predictions about the	the object into our eyes for the object to be seen. *I know/describe using diagrams/models that objects that block light (are not fully transparent) both translucent and opaque will cause shadows. *I can predict and explain, with diagrams/ models as appropriate, how the path of light rays can be directed by reflection to be seen, e.g., the reflection in car rear view mirrors or in a periscope * I can predict where light will appear after
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	specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics. The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals, not just meat. I can compare the structure of	E.g., Manipulating playdough	diagrams) that if two like poles, e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles, e.g. a north and south, are brought together they will pull together – attract. *Setting up simple practical enquiries, Involving how things move on different surfaces *Record and report on findings from investigations, involving how things move on	evaporation, condensation and precipitation occurs in the water cycle e.g. water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. *This is known as precipitation.	effects of air resistance in a range of contexts e.g. parachutes. *To identify a variable that should and could be controlled. *To report and present findings from enquiries, including conclusions.	hitting a reflective surface (light will reflect at the same angle as it hits the surface). *I can present findings by recording a short video to explain how the light pinhole torch can be used to support the idea that light travels in a straight line.
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	a variety of animals including common pets. E.g. I can sort animals into groups because of how they look e.g. legs/no legs wings/no wings I can answer simple questions in a variety of ways e.g How can you decide which group of animals you belong to?		different surfaces.	*I can set up tests and use the data to explain factors that can impact the rate of evaporation. E.g., Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. *I can observe closely and classify a range of solids and liquids. I can classify materials according to whether they are solids, liquids and gases.		
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<u>Autumn 2- Seasonal Change</u>	<u>Autumn 2- Everyday Materials</u>	<u>Autumn 2 -Plants</u>	<u>Autumn 2- Light</u>	<u>Autumn 2 Sound</u>	<u>Autumn 2 Year 5 Earth and Space</u>	<u>Autumn 2 Year 6 Electricity</u>
*I can talk about how I feel in different types of weather/seasons. *I can talk about the clothes I wear in different seasons and why. *I can talk about the weather throughout the year. *I can find shelter or make shelters to keep themselves dry in the rain or shade themselves when it is sunny. *I can talk about how the ground changes when it rains. *I can measure the size of puddles using my feet after it rains.	*I know that an object may be made one or more different material. *I can name these materials (wood, plastic, metal, glass, water, rock) e.g. a spoon may be made from wood, metal and plastic. A window is made from glass. *I know some simple properties of materials e.g., wool is soft and absorbent, glass is hard and see-through, metal is shiny and strong.	*I know that seeds and bulbs can germinate and grow into plants. *I know that seeds do not need light to germinate. *I know that some plants have flowers which become seeds, fruits. *I know that seeds and bulbs need to be planted outside at times of year and they will germinate and grow at different rates. E.g. Sunflower seeds should be planted in late Spring.	* I know that we see objects because our eyes can sense light. *I know that dark is the absence of light so I cannot see anything in complete darkness. *I can identify objects that are sources of light. E.g. the sun, light bulbs and candles are *I know that some surfaces reflect light e.g. a mirror, the moon. *I know objects are easier to see when there is less light if they are reflective e.g. smooth and shiny materials reflect light well rather	*I know a sound produces vibrations which travel through a medium from the source to our ears. *I know that different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). *I know that vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound.	*I know that The Sun is a star and it is at the centre of our solar system. *I know there are 8 planets (can choose to name them, but not essential). *I know the planets travel around the Sun in fixed orbits. *I know that Earth takes 365¼ days to complete its orbit around the Sun. *I know that the Earth rotates (spins) on its axis every 24 hours.	*I know that if more cells are added to a complete circuit a bulb will become brighter, a motor will spin faster or a buzzer will make a louder sound. *I know that if you use a battery with a higher voltage, the same thing happens i.e. a bulb will become brighter, a motor will spin faster or a buzzer will make a louder sound. * I know if more bulbs are added to a circuit this will make each bulb less bright.



*I can talk about how puddles change over time after it rains. *I can talk about the animals and plants that they find in different seasons. I can find out about how animals behave in different seasons. *I can find out about the weather and seasons.	*I can compare, and sort materials based on their properties e.g., hard/ soft absorbent/non-absorbent see-through, not see-through. * I can use prior test evidence to answer questions about properties e.g. "Which material would you use for a puppy's basket? I would use cotton wool because it is the most absorbent. Which material would use to build a shelter? Plastic because it did not let water in (waterproof).	*I know that some plants are better suited to growing in full sun and some grow better in partial or full shade. E.g. Ferns prefer the shade but sunflowers need complete sunlight. *I know that some plants also need different amounts of water and space to grow well and stay healthy. E.g. cacti don't need much water but cress needs lots of water to grow. *I can identify similarities and difference between bulbs and seeds	than dull and dark fabrics. *I know that the light from the sun can damage our eyes and I can suggest ways in which we can protect our eyes e.g. don't look directly at sun, sun hat, sunglasses. *I know that shadows are formed when the light from a light source is blocked by a light source. * The size of the shadow depends on the position of the source, object, and surface. E.g., The closer an object is to the light source, the more light it blocks. This means it	*I know that pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. E.g. smaller objects usually produce higher pitched sounds. *I know that the loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. - sounds decrease in volume as you move away from the source.	*I know/show using diagrams that as Earth rotates- half faces the Sun (day) and half is facing away from the Sun (night). *I know that as the Earth rotates, the Sun appears to move across the sky. *I know that the Sun, Earth and Moon are approximately spherical. *I know the Moon orbits the Earth. *I know it takes about 28 days to complete its orbit. *Use secondary sources to help	*I know if I use more motors or buzzers, each motor will spin more slowly, and each buzzer will be quieter. *I can explain that by turning a switch off (open) it will break a circuit so the circuit is not complete, and electricity cannot flow so any bulbs, motors or buzzers will then turn off as well. *I can use recognised circuit symbols to draw simple circuit diagrams. *I can draw straight lines that represent the light, touch the object and
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		*Classify seeds and bulbs. *Research and plan when and how to plant a range of seeds and bulbs * Make comparisons between plants as they grow.	creates a bigger shadow. * I can select appropriate materials to create shadows e.g., to make a shadow puppet I will use tin foil as it opaque. I would not use clear plastic as it is transparent – it lets light pass through easily and won't create a shadow. *To observe that light can be reflected off surfaces. * Investigate the visibility of different materials (e.g. shiny; foil, mirrors and matt; sugar paper) in a	*I know that a sound insulator is a material which blocks sound effectively and I can give examples e.g. cotton wool is a good sound insulator but cardboard is not. *Make predictions about the pitch and volume of sounds. *Draw conclusions about the pitch and volumes of sound. *Identify and show how sound travels through particles and into the ear.	create a model e.g. role play to show the movement of the Earth around the Sun. *Make first-hand observations of how shadows caused by the Sun change through the day. *Use secondary sources to create a model to show why day and night occur.	show the path of the light clearly. I can present findings by recording a short video to explain how the light pinhole torch can be used to support the idea that light travels in a straight line. I can draw rays of light coming directly from the light source to the eye. I can use diagrams to demonstrates that light travels in a straight line and is reflected from surfaces into the eye so he can see them.
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