THE AVENUE INFANT SCHOOL

SCIENCE KNOWLEDGE AND BREADTH TRACKER

EYFS	THRESHOLD CONCEPT 1: **Working Scientifically**	THRESHOLD CONCEPT 2: **Understanding biology**	THRESHOLD CONCEPT 3: **Understanding chemistry**	THRESHOLD CONCEPT 4: **Understanding physics**
Experiences to build foundations in threshold concepts during EYFS	Begin to observe e.g. weather patterns, the natural world Begin to explore, investigate and experiment Begin to sort and compare Begin to name, describe and explain Stem sentences: • I can see… • Why… • I'm going to try… • That happened before when… • It's the same as… • It's different to…	Learn names of part of the body Explore living things in context Similarities and differences in living things	Learning about material changes such as melting, cooking Similarities and differences in materials	Observation of weather, discussion of the seasons

	THRESHOLD CONCEPTS & BREADTH DETAIL			
YEAR 1	THRESHOLD CONCEPT 1: **Working Scientifically**	THRESHOLD CONCEPT 2: **Understanding biology**	THRESHOLD CONCEPT 3: **Understanding chemistry**	THRESHOLD CONCEPT 4: **Understanding physics**
TERM 1 **Is Goldilocks fussy?**	I know how to carry out simple tests. I know how to identify and classify things. I know how to explain to others what I have found out. I know how to use simple equipment to make observations. Test, sort, compare, group, why, identify, observe, notice		*Know the name of the materials an object is made from* *Know about the properties of everyday materials* I distinguish between an object and the material it is made from. I know the materials that an object is made from. I know the difference between wood, plastic, glass, metal, water and rock.	*Name the seasons and know about the type of weather in each season* I observe and know about the changes in the seasons. I name the seasons and know about the type of weather in each season. How?

	Working scientifically stem sentences: • Why is….? • I know that… • I think… • I found out…. • This is the same because… • This is different because…		I know about the properties of everyday materials. I group objects based on the materials they are made from. How? • Knowledge check- what materials do you know? 'Magic materials box' • Sorting, identifying, classifying materials • What material is most suitable for Goldilocks' bowl? Sort, identify, compare, texture, bendy, smooth, squashy, hard, soft…, wood, plastic, glass, metal, water, rock	• Close observation of Autumn leaves- how have they changed • Observations of weather patterns over time season seasonal spring summer autumn winter warm cool wind rain sun fog snow cloud droplet float dark fluffy storm forecast predict future scientist
TERM 2 **Do all Superheroes wear capes?**	I know how to ask simple scientific questions. I know how to use simple equipment to make observations. I know how to carry out simple tests. I know how to explain to others what I have found out.	*Know the name of parts of the human body that can be seen* I know how to name the parts of the human body that I can see. I know how to link the correct part of the human body to each sense. How? • Can you build a tower without being able to see, your partner can't touch the bricks but can help you? What did you use? What are senses? • Selection of objects to indicate a task (e.g. binoculars for birdwatching) sort by senses used • Naming body parts associated with 5 senses • Lost senses- Louis Braille (cf. history). Explore link between senses eg. Taste and smell, sound and texture (link to Evelyn Glennie- deaf percussionist-		*Name the seasons and know about the type of weather in each season* I observe and know about the changes in the seasons. I name the seasons and know about the type of weather in each season. How? • Observations of weather patterns over time season seasonal spring summer autumn winter warm cool wind rain sun fog snow cloud droplet float dark fluffy storm forecast predict future scientist

		feeling sound). Rice on speakers- drums. Sense, sight, hearing, smell, taste, touch, eyes, ears, nose, tongue, skin, vibration, sort, texture.		
TERM 3 **Are all pirates bad?**	I know how to ask simple scientific questions. I know how to use simple equipment to make observations. I know how to carry out simple tests. I know how to explain to others what I have found out.			*Forces (added as a further focus for working scientifically) *Know an object can be moved by a push or pull (force)** I can identify a push or pull force I can begin to explore forces How? • How can you move a heavy treasure chest? Can you move it to the upper deck? Force, push, pull, move, slide, direction, distance. *Name the seasons and know about the type of weather in each season* I observe and know about the changes in the seasons. I name the seasons and know about the type of weather in each season. How? • Exploring ice- how to save a snowman? season seasonal spring summer autumn winter warm cool wind rain sun fog snow cloud droplet float dark fluffy storm forecast predict future scientist melt, change, liquid, solid, change
TERM 4	I know how to use simple equipment to make observations.	*Know how to sort by living and non living things*		*Name the seasons and know about the type of weather in each season*

Would you like to live like a monkey?	I know how to identify and classify things. I know how to explain to others what I have found out. I know how to use simple data to answer questions	*Know and name a variety of common wild and garden plants* *Know and name the petals, stem, leaves and root of a plant* *Know and name the roots, trunk, branches and leaves of a tree* *Know and classify animals by what they eat (carnivore, herbivore and omnivore)* I know and name a variety of common wild and garden plants. I know and name the petals, stem, leaves and root of a plant. I know and name the roots, trunk, branches and leaves of a tree. How? • Plant a seed / bulb to grow a flower • Naming parts of a plant • Flowers in inky water- see changes Daisy, dandelion, rose, daffodil, thistle, clover, stem, petal, leaves, roots, trunk, branches, seed, bulb, weed, living, dead, grow, pollen, basic needs, water, food, shelter, sleep, carnivore, herbivore, omnivore		I observe and know about the changes in the seasons. I name the seasons and know about the type of weather in each season. How? • Signs of Spring – changes in environment. season seasonal spring summer autumn winter warm cool wind rain sun fog snow cloud droplet float dark fluffy storm forecast predict future scientist
TERM 5 **What's more deadly- fire, ice or water?**	I know how to ask simple scientific questions. I know how to use simple equipment to make observations. I know how to carry out simple tests. I know how to identify and classify things. I know how to explain to others what I have found out.		*Know the name of the materials an object is made from* *Know about the properties of everyday materials* *Begin to know why a material might or might not be used for a specific job* I distinguish between an object and the material it is made from. I know the materials that an object is made from.	*Name the seasons and know about the type of weather in each season* I observe and know about the changes in the seasons. I name the seasons and know about the type of weather in each season. How? • Where have the puddles gone? • Can my chocolate bar / ice lolly be outside in the sun?

			I know the difference between wood, plastic, glass, metal, water and rock. I know about the properties of everyday materials. I group objects based on the materials they are made from. I can find objects that are magnetic How? • Ascertain children's experiences of boats and materials. • boat, deck, sail, pothole…- investigate suitable material for each aspect of the boat (in groups and feedback) • Magnetic materials Sort, identify, compare, texture, bendy, smooth, squashy, hard, soft…, wood, plastic, glass, metal, water, rock, see-through, transparent, firm, cold, warm, magnetic, non-magnetic, poles, natural	Melt, thaw,
TERM 6 **Could a meerkat live in the north pole?**	I know how to ask simple scientific questions. I know how to use simple equipment to make observations. I know how to carry out simple tests. I know how to identify and classify things. I know how to explain to others what I have found out. I know how to use simple data to answer questions	*Know and classify animals by what they eat (carnivore, herbivore and omnivore)* *Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds* I know and name a variety of animals including fish, amphibians, reptiles, birds and mammals. I classify and know animals by what they eat (carnivore, herbivore and omnivore). I know how to sort animals into categories (including fish, amphibians, reptiles, birds and mammals).		*Name the seasons and know about the type of weather in each season* I observe and know about the changes in the seasons. I name the seasons and know about the type of weather in each season. How? • Weather chart and observation / tracking changes

		How? • Animals and their habitats- why are they suited? • What's in my patch- hoop on ground (forest school visit?)- find minibeasts and identify habitat preferred. Data collection • Explore features of habitats and why they suit different animals • Animal estate agents- use research into animals / minibeasts and match to 'house description' that would suit and say why. Grow, carnivore, herbivore, omnivore, habitat, fish, amphibian, reptile, birds, mammals, meat, plants, food group.		

	THRESHOLD CONCEPTS & BREADTH DETAIL			
YEAR 2	THRESHOLD CONCEPT 1: **Working Scientifically**	THRESHOLD CONCEPT 2: **Understanding biology**	THRESHOLD CONCEPT 3: **Understanding chemistry**	THRESHOLD CONCEPT 4: **Understanding physics**
TERM 1 **What makes a nation healthy?**	I know how to ask simple scientific questions. I know how to carry out simple tests. I know how to identify and classify things. I know how to explain to others what I have found out	*Know why exercise, a balanced diet and good hygiene are important for humans* I know what animals and humans need to survive. I know why exercise, a balanced diet and good hygiene are important for humans. How? • How healthy are you? Knowledge check- what does being healthy mean to you? Diet, sleep, hygiene, exercise.		**Continuation from Year 1 (this will also continue throughout Year 2):** *Name the seasons and know about the type of weather in each season* I observe and know about the changes in the seasons. I name the seasons and know about the type of weather in each season. How? Weather chart and observation / tracking changes

		• Children select fav snack from a selection (one of each food group) then create chart and analyse- introducing food groups • Sorting food into food groups • Record a food diary for a day- review food groups consumed • Exercise investigation- effects on body. • Explore why a professional athlete / footballer would have different food requirements • Mouldy bread investigation- germs and bacteria Grow, food group, pattern, grouping, classifying, carbohydrates, protein, fats and sugars, dairy, fruits and vegetables, health, nutrition, thrive, hygiene		
TERM 2 **What is it like to live in Kenya?**	I know how to ask simple scientific questions. I know how to use simple equipment to make observations. I know how to carry out simple tests. I know how to identify and classify things. I know how to explain to others what I have found out. I know how to use simple data to answer questions	*Classify things by living, dead or never lived* *Know how a specific habitat provides for the basic needs of things living there (plants and animals).* *Match living things to their habitat* *Name some different sources of food for animals* *Know about and explain a simple food chain* I identify things that are living, dead and never lived. I know how a specific habitat provides for the basic needs of things living there (plants and animals). I identify and name plants and animals in a range of habitats. I match living things to their habitat.		

		I know how animals find their food. I name some different sources of food for animals. I know and can explain a simple food chain. I can use a microscope to closely view a plant How? • Observation and data collection- hunt for things living, dead and never lived • African grasslands / plains- why is it suited to different animals and plants? Explore habitats via webcams. Discuss food chains in habitats- circle of life. Wildlife film extracts. Compare two animals eg hippo and leopard. • Plant condition experiment- cacti vs other plant. Analyse impact on plants. • Look closely at cacti and other plants to make complarisons Grow, carnivore, herbivore, omnivore, habitat, fish, amphibian, reptile, birds, mammals, meat, plants, food group, basic needs, water, food, shelter, sleep living, dead, never been alive, adaptation, food chains, hunter, prey, (producer, consumer), parasitic, microscope		
TERM 3 **Will we ever get to Mars?**	I know how to ask simple scientific questions. I know how to use simple equipment to make observations. I know how to carry out simple tests. I know how to identify and classify things.		*Know why a material might or might not be used for a specific job* I identify and name a range of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard. I know why a material might or might not be used for a specific job.	*Forces (added as a further focus for working scientifically) *Know that gravity is a force that pulls objects down* *Know that different surfaces can affect the movement of an object on the surface* I know that there is a force called gravity and it pulls objects to earth

	I know how to explain to others what I have found out. I know how to use simple data to answer questions Test, sort, compare, group, why, identify, observe, notice, suitable, appropriate, predict, fair test, reason, conclusion. Working scientifically stem sentences: • Why is….? • I know that… • I think… • I found out…. • This is the same because… • This is different because… • I predict that…because… • I noticed…. • This changed because…. • This material is most suitable because….		How? • Naming and sorting materials, recognising a range of properties • Which material would make the best spacesuit and why? Sort, identify, compare, texture, bendy, smooth, squashy, hard, soft…, wood, plastic, glass, metal, water, rock, see-through, transparent, firm, cold, warm, natural, man made, insulation, flexible, rigid, purpose, waterproof, strong, durable	I know that a rougher surface will cause more friction and slow the movement of an object on the surface How? • Object drop investigation • Moon buggy surfaces Force, push, pull, move, slide, direction, distance, gravity, friction, mass, weight, motion, rough, smooth, bumpy…
TERM 4 TERM 5 **Are you a town mouse or a country mouse?**	I know how to ask simple scientific questions. I know how to use simple equipment to make observations. I know how to carry out simple tests. I know how to identify and classify things. I know how to explain to others what I have found out. I know how to use simple data to answer questions Measure, fair test, pipette, prediction, reasons, method, findings, conclusion	*Know and explain how seeds and bulbs grow into plants* *Know what plants need in order to grow and stay healthy (water, light & suitable temperature)* I know how seeds and bulbs grow into plants. I know what plants need in order to grow and stay healthy (water, light & suitable temperature). How? • Plant conditions growth experiment- light / no light, water / no water, room temp / fridge- grow seeds / bulbs	*Know why a material might or might not be used for a specific job* I identify and name a range of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard. I know why a material might or might not be used for a specific job. How? • Tent for country mouse- test waterproof (language of fair testing) Vocab as term 3.	

		seed, bulb, living, dead, grow, pollen, basic needs, water, light, temperature, stem, petal, leaves, roots, seedling, shoot, germinate, microscope		
TERM 6 **What is in our oceans?**	I know how to ask simple scientific questions. I know how to use simple equipment to make observations. I know how to carry out simple tests. I know how to identify and classify things. I know how to explain to others what I have found out.	*Know the basic stages in a life cycle for animals, including humans* *Know how a specific habitat provides for the basic needs of things living there (plants and animals).* *Match living things to their habitat* *Name some different sources of food for animals* *Know about and explain a simple food chain* I identify things that are living, dead and never lived. I know how a specific habitat provides for the basic needs of things living there (plants and animals). I identify and name plants and animals in a range of habitats. I match living things to their habitat. I know how animals find their food. I name some different sources of food for animals. I know and can explain a simple food chain. I know the basic stages in a life cycle for animals, including humans. How? • Ocean food chains • Ocean habitats- how and why they thrive …or not (environmental change / human impact- cf Geography). Exploring	*Know how materials can be changed by squashing, bending, twisting and stretching* I know how materials can be changed by squashing, bending, twisting and stretching. How? • Boat designer- range of materials, making malleable materials into boats	

		environmental changes- impact of plastic in the ocean Grow, carnivore, herbivore, omnivore, habitat, fish, amphibian, sea creature, birds, mammals, meat, plants, food group, basic needs, water, food, shelter, sleep, adaptation, food chains, hunter, prey, (producer, consumer), parasitic,		