Why Science?

Connected Curriculum

A message from Mrs Powell , our Science lead:

Science is something which I feel incredibly passionate about as it's all around us and ever changing. As a UN Accredited Climate Change Teacher, I am keen to focus on environmental science at our school and by making our school more eco-friendly.

As part of developing Science I am always keen to hear from parents / carers who are involved in the industry in any way and would be willing to share their knowledge and expertise with the children.

Design and Purpose

The science curriculum is a key thread within the connected curriculum. The curriculum has been shaped through the adoption and adaption of the Edison curriculum.

Science is taught as part of our Connected Curriculum each half term. Connections are made to Design and Technology, Outdoor Learning, History, Art and Geography.

Environmental science is a thread within the curriculum due to being an Eco –school with distinction.

There are 4 scientific strands: chemistry, biology, physics and working scientifically.

Progression of knowledge and skills is mapped across progression rivers for the 4 strand areas.

We develop key areas of working scientifically: classification and identification; observation over time; research; pattern seeking; fair and comparative testing and exploration.

Our curriculum develops children's understanding of the nature, processes, and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them. Children develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry, and physics.

As children develop their scientific knowledge, they also learn about its uses and significance to society and their own lives, including the impact of climate change, for today and for the future.

Science is carefully mapped and units are taught sequentially building knowledge and skills through a combination of practical tasks and opportunities to apply key concepts and knowledge in different ways.

Each science lesson starts with a key question and follows a series of layers allowing children to show what they know, learn and do. This includes the development and use of scientific vocabulary.

Difference

As scientists, our children demonstrate enquiry skills during practical investigations and reasoning activities. They can ask questions, make predictions, set up tests, observe and measure what happens, record the data, interpret and communicate their results and evaluate their findings.

Across lessons children 'can' show what they know against 'I can statements'. These are introduced at the start of a unit, revisited during the unit and used to review what they know and can do at the end. Quizzes are used within this process to support children to recall and remember. Over time, children show that they remember more and remember well. They can make connections and show a secure understanding of the world.

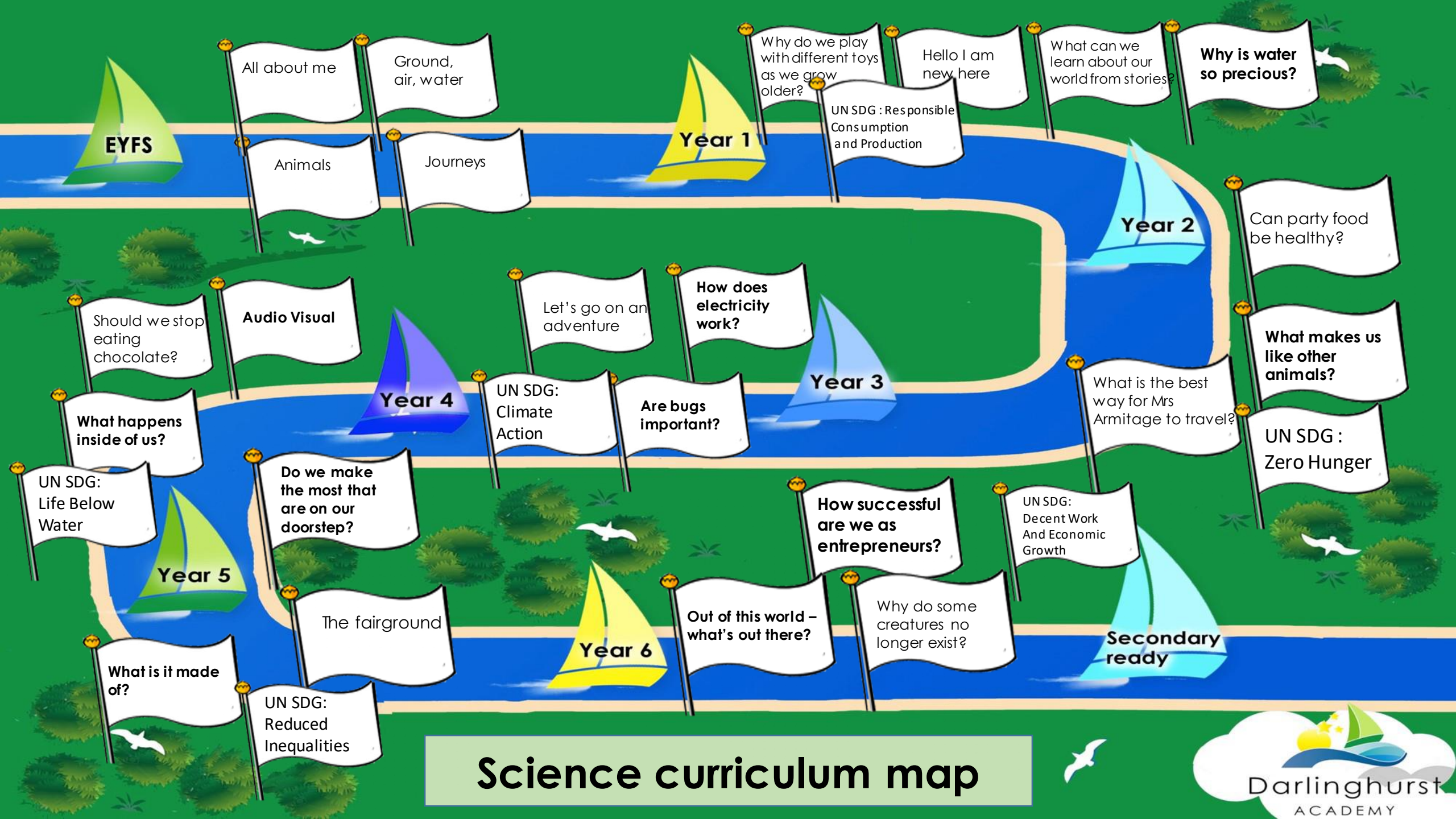
Our children demonstrate scientific knowledge and skills at key milestones linked to key National Curriculum concepts for Science, for example, in biology; understanding plants at Milestone 1 they name a variety of common plants and their parts. By Milestone 2 they can explain the function of the parts of a plant and its lifecycle. At the final milestone they can relate the knowledge of plants to evolution and inheritance. An increase in understanding and skills is either at a basic, advancing or deep level. As children progress through the school, more children can demonstrate an advancing and deep knowledge, making connections between different concepts.

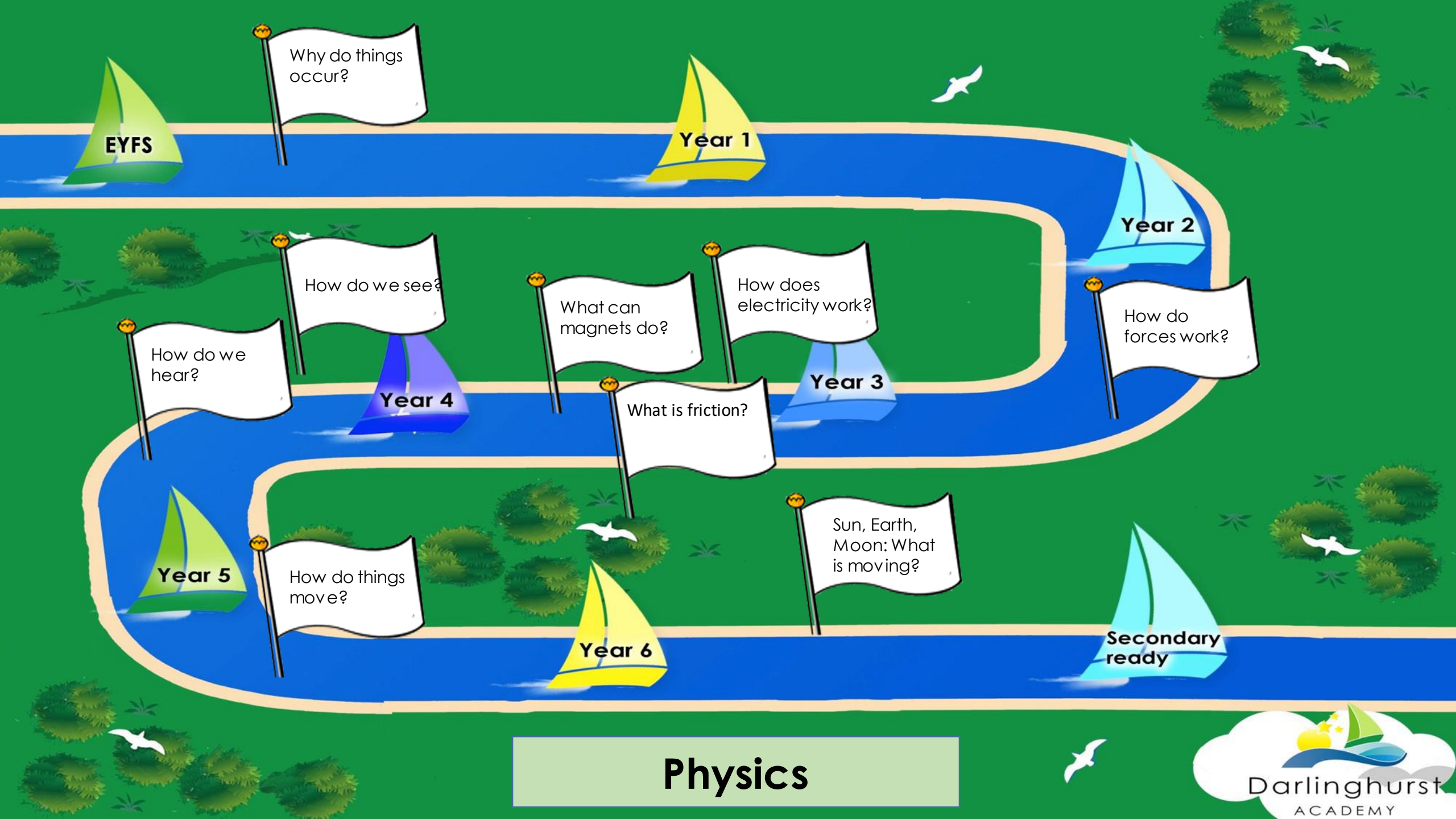
Our children become successful learners. They are active citizens with a secure understanding of science and sustainability. They are confident scientists and effective contributors who engage readily in

environmental science, nature and outdoor learning which has led to Darlinghurst Academy flying the Green Flag - with Distinction.

We engage in community projects and further enrich our children through visits and trips, visitors in school and practical workshops. This includes a long-standing connection with a local High School whom teach and demonstrate science learning and prepares them for transition to secondary school. We value networking and sharing practice with other schools and community groups to further embed understanding of science and nature.

'Achieving Excellence Together'


EYFS
All about me
Ground, air, water
Animals
Journeys
Year 1
Why do we play with different toys as we grow older?
Hello I am new here
UN SDG : Responsible Consumption and Production
What can we learn about our world from stories?
Why is water so precious?
Year 2
Can party food be healthy?
Should we stop eating chocolate?
Audio Visual
Year 4
Let's go on an adventure
How does electricity work?
Year 3
What makes us like other animals?
What happens inside of us?
UN SDG: Climate Action
Are bugs important?
What is the best way for Mrs Armitage to travel?
UN SDG : Zero Hunger
UN SDG: Life Below Water
Do we make the most that are on our doorstep?
Year 5
How successful are we as entrepreneurs?
UN SDG: Decent Work And Economic Growth
The fairground
Year 6
Out of this world – what's out there?
Why do some creatures no longer exist?
Secondary ready
What is it made of?
UN SDG: Reduced Inequalities
Science curriculum map
Darlinghurst ACADEMY



Physics

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Breadth of study

EYFS

- Compare how things move on different surfaces
- Notice that some forces need contact between two objects
- Observe how magnets attract and repel each other
- Identify the effects of air resistance, water resistance and friction
- Recognise some mechanisms
- Observe how magnets attract and repel each other
- Compare and group materials based on magnetism
- Identify some magnetic materials
- Describe that magnets have 2 poles
- Predict if 2 magnets will attract or repel
- Explain that objects fall because of gravity
- Identify the effects of air resistance, water resistance and friction

Secondary ready

Forces

Darlinghurst ACADEMY

Breadth of study

EYFS

- Recognise that we need light to see things
- Notice that light is reflected from surfaces
- Recognise that light from the sun is dangerous and how to protect eyes
- Recognise how shadows are formed
- Find patterns in the way the size of shadows change
- Identify how sounds are made
- Recognise that vibrations from sounds travel through something to the ear
- Find patterns between the volume of a sound and vibrations produced by it
- Find patterns between the pitch of a sound and features of what produced it
- Recognise that sounds get fainter as the distance increases

Secondary ready

Light and Sound

Darlinghurst ACADEMY

Breadth of study

EYFS

- Identify common electrical appliances
- Construct a simple circuit, identifying its parts
- Identify whether or not a lamp will light in a simple series circuit
- Recognise that a switch opens and closes a circuit
- Recognise some simple conductors and insulators

Secondary ready

Electricity

Darlinghurst ACADEMY

Breadth of study

EYFS

- Describe the movement of the Earth and other planets relative to the Sun
- Describe how the moon moves in relation to the Earth
- Describe the Sun, Earth and Moon as approximately spherical
- Talk about the Earth's rotation to explain day and night

Secondary ready

Earth and Space

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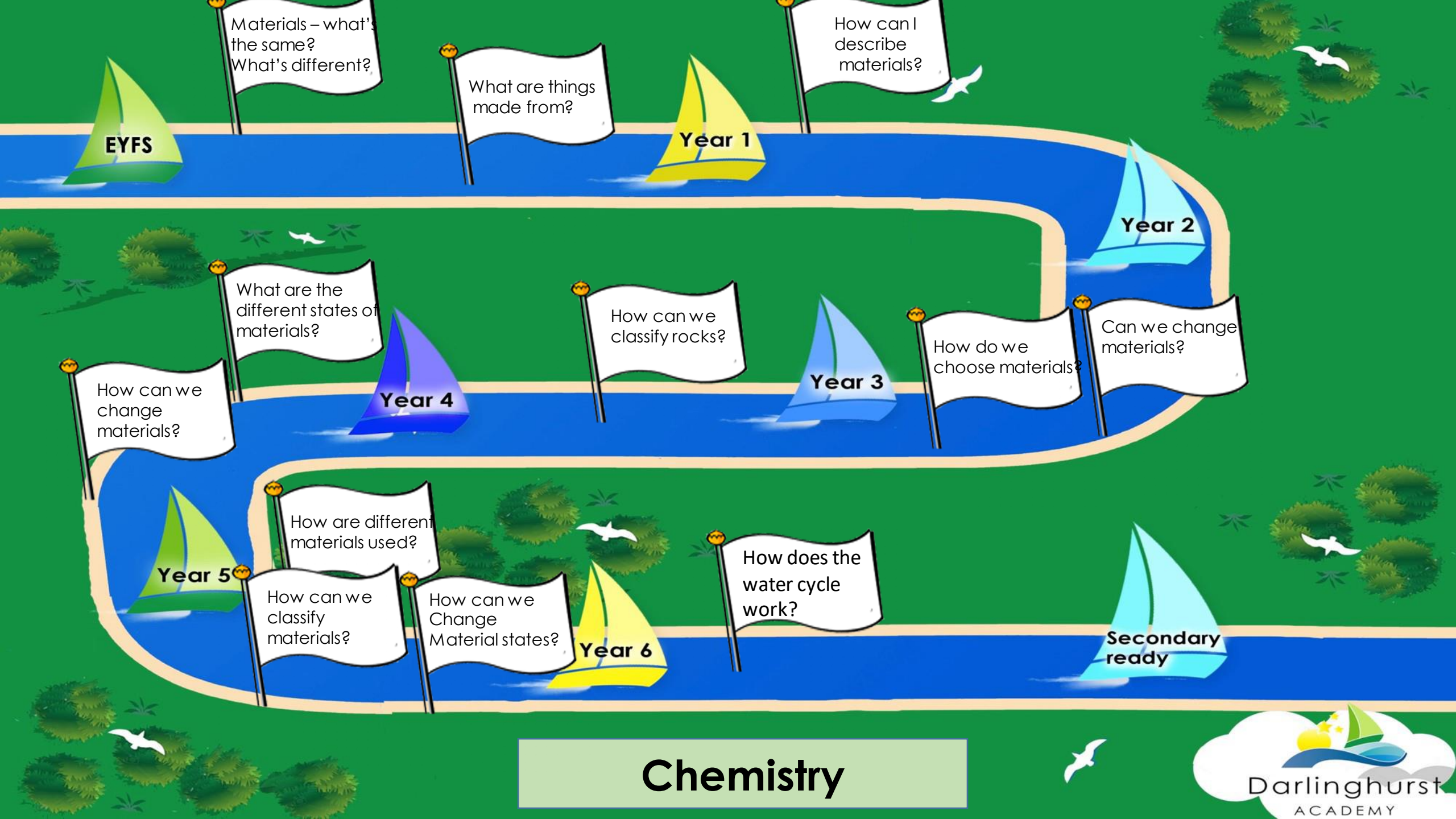

Chemistry

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Breadth of study

EYFS

- Identify and name a variety of materials
- Compare and group together materials based on their physical properties
- Describe physical properties of some materials
- Distinguish between an object and the material with which it is made
- Find out how the shapes of solid objects made from some materials can be changed
- Identify and compare the suitability of materials for particular uses
- Compare and group things together – solids, liquids, gases
- Observe that some materials change state when they are heated or cooled
- Compare and group together materials based on their properties
- Recognise that some materials will dissolve in liquid to form a solution
- Use knowledge of solids, gases and liquids to decide how mixtures might be separated
- Give reasons, based on evidence of tests, for the particular uses of materials
- Demonstrate that dissolving, mixing and changes of state are reversible changes
- Explain that some changes result in irreversible changes.

Secondary ready

Materials

Darlinghurst ACADEMY

Breadth of study

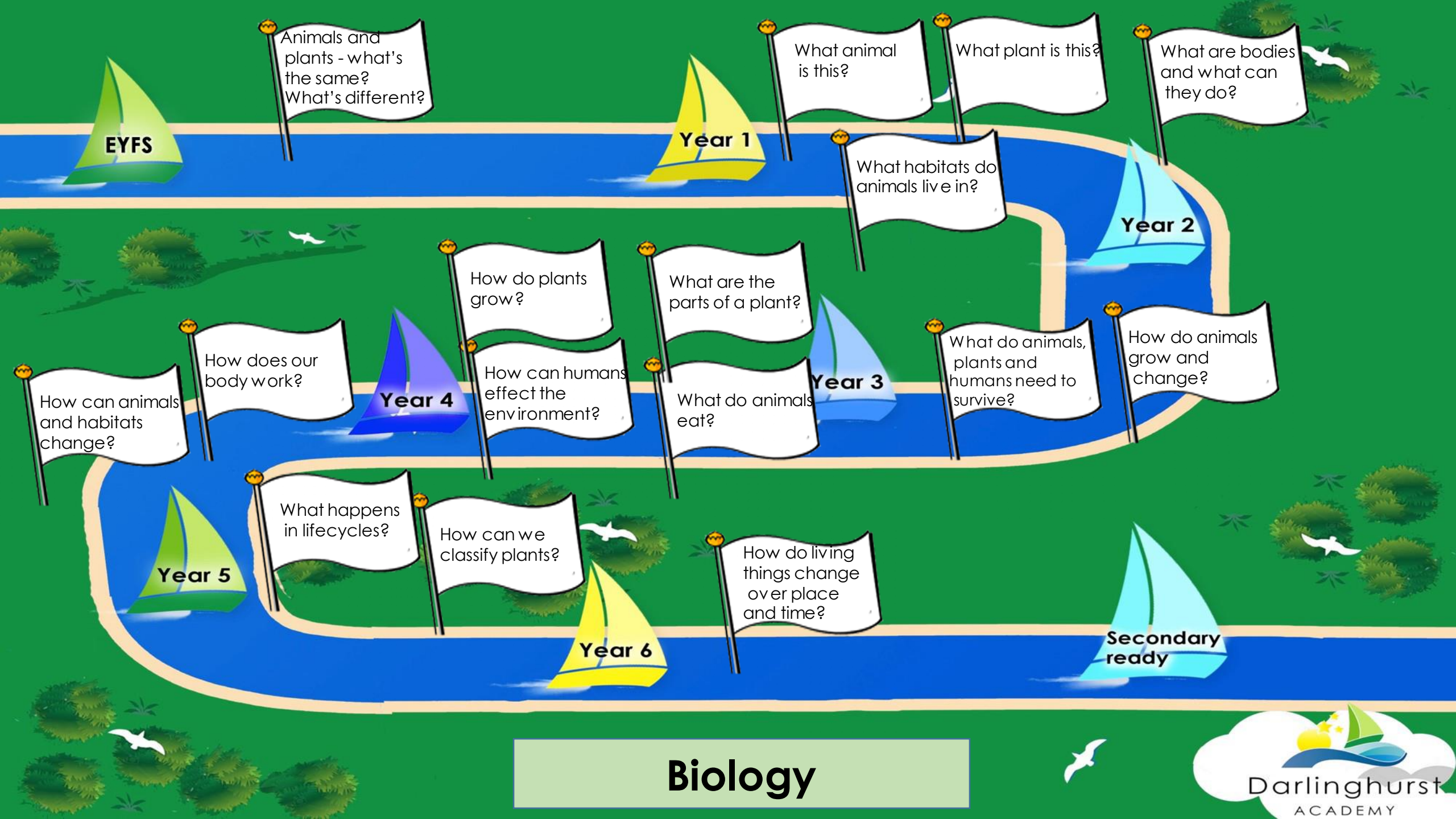
EYFS

- Compare and group together different types of rocks based on their appearance and physical properties
- Describe in simple terms how fossils are formed
- Recognise that soil is made from rocks and organic matter

Secondary ready

rocks

Darlinghurst ACADEMY



Biology

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Breadth of study

EYFS

- Identifying, naming and describing plants
- Identify and describe function of parts of plants
- How do plants grow?
- Describe life processes in plants
- Group, classify and name plants in local environment

Secondary ready

Plants

Darlinghurst ACADEMY

Breadth of study

EYFS

- Name, identify and compare fish, amphibians, reptiles
- Observe that animals have offspring and grow into adults
- Describe the basic needs of animals
- Identify nutritional needs of animals
- Describe how living things are classified
- Recognise how living things have changed overtime and adapt to their environment
- Recognise that offspring is not identical to parents

Secondary ready

Animals

Darlinghurst ACADEMY

Breadth of study

EYFS

- Identify, name, draw and label parts of human body and link to the senses
- Identify basic needs of humans
- Describe the importance of exercise, healthy eating and hygiene
- Describe the function of the human digestive system and teeth

Secondary ready

Humans

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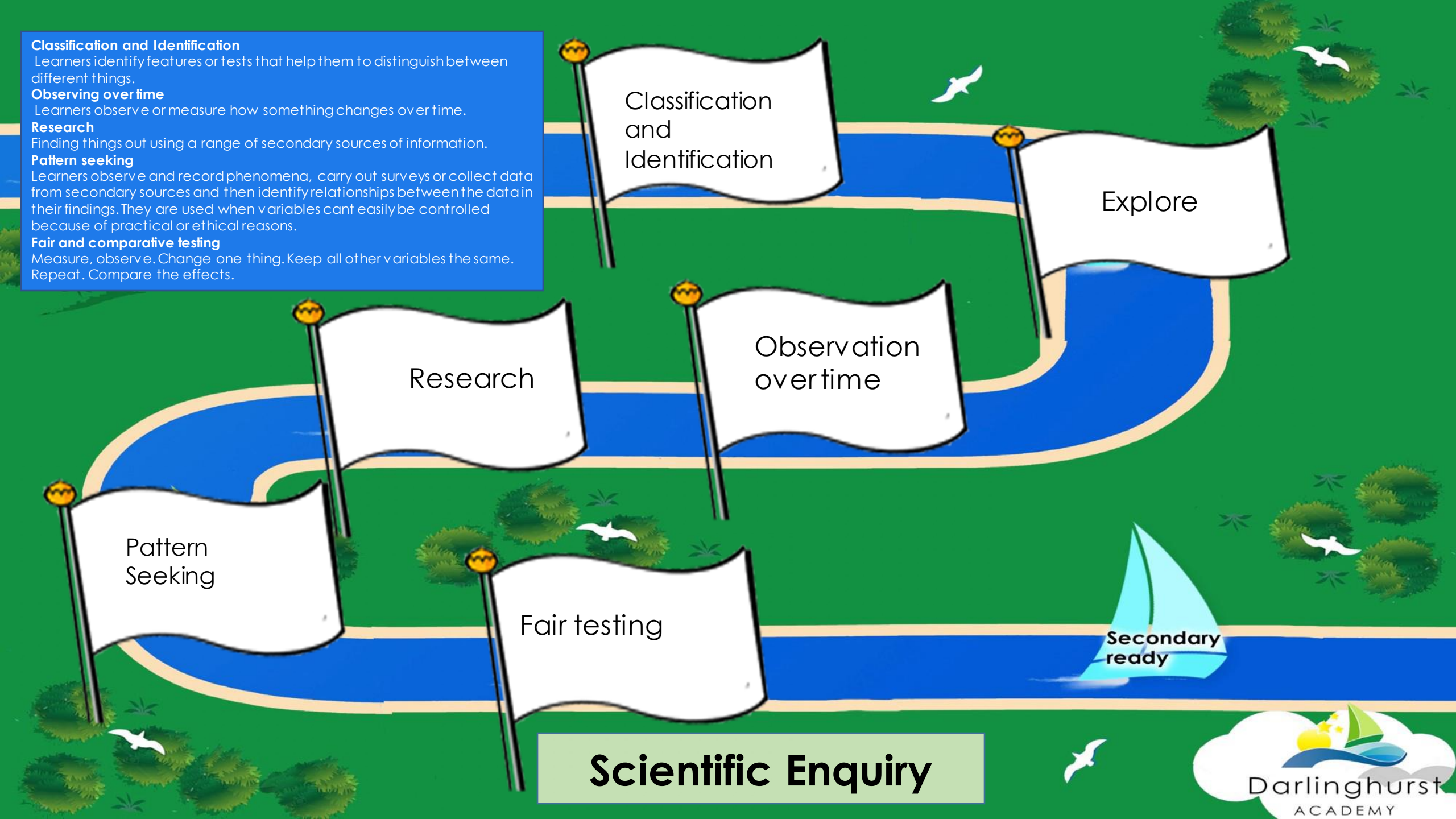
Classification and Identification
Learners identify features or tests that help them to distinguish between different things.

Observing over time
Learners observe or measure how something changes over time.

Research
Finding things out using a range of secondary sources of information.

Pattern seeking
Learners observe and record phenomena, carry out surveys or collect data from secondary sources and then identify relationships between the data in their findings. They are used when variables cant easily be controlled because of practical or ethical reasons.

Fair and comparative testing
Measure, observe. Change one thing. Keep all other variables the same. Repeat. Compare the effects.



Skills

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Key Concepts

EYFS

- Working Scientifically
- Understanding plants
- Understanding humans and animals
- Investigating living things
- Understanding evolution and inheritance
- Investigating materials
- Understanding light and seeing
- Investigating sound and hearing
- Understanding movement, forces and magnets
- Understanding electrical circuits
- Understand the earth's movement in space

Secondary ready

Science

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Working scientifically

EYFS

Year 1 and 2

asking simple questions and recognising that they can be answered in different ways

observing closely, using simple equipment

performing simple tests

- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Year 3 and 4

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Year 5 and 6

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting 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
- identifying scientific evidence that has been used to support or refute ideas or arguments.

Secondary ready

Darlinghurst ACADEMY