

Step by Step Learning

Science

Sound

When all components are taught, practised, processed and transferred to long term memory, our children will be able to:

- ♦ **Identify how sounds are made, associating some of them with something vibrating**
 - ♦ **Recognise that vibrations from sounds travel through a medium to the ear**
- ♦ **Find patterns between the pitch of a sound and features of the object that produced it**
- ♦ **Find patterns between the volume of a sound and the strength of the vibrations that produced it**
 - ♦ **Recognise that sounds get fainter as the distance from the sound source increases**

Year Four

Investigate how sound travels and the impact of distance on sound.

Learners will experiment how sound travels through different materials and states of matter.

Investigate the relationship between vibration and volume.

Children will learn about aspects of sound when using instruments, singing and listening to music.

Children will link to oracy lessons and learn about volume of speaking when performing to an audience.

Year Three

Children will learn about aspects of sound when using instruments, singing and listening to music.

Children will link to oracy lessons and learn about volume of speaking when performing to an audience.

Year Two

Children will learn about aspects of sound when using instruments, singing and listening to music.

Children will link to oracy lessons and learn about volume of speaking when performing to an audience.

Year One

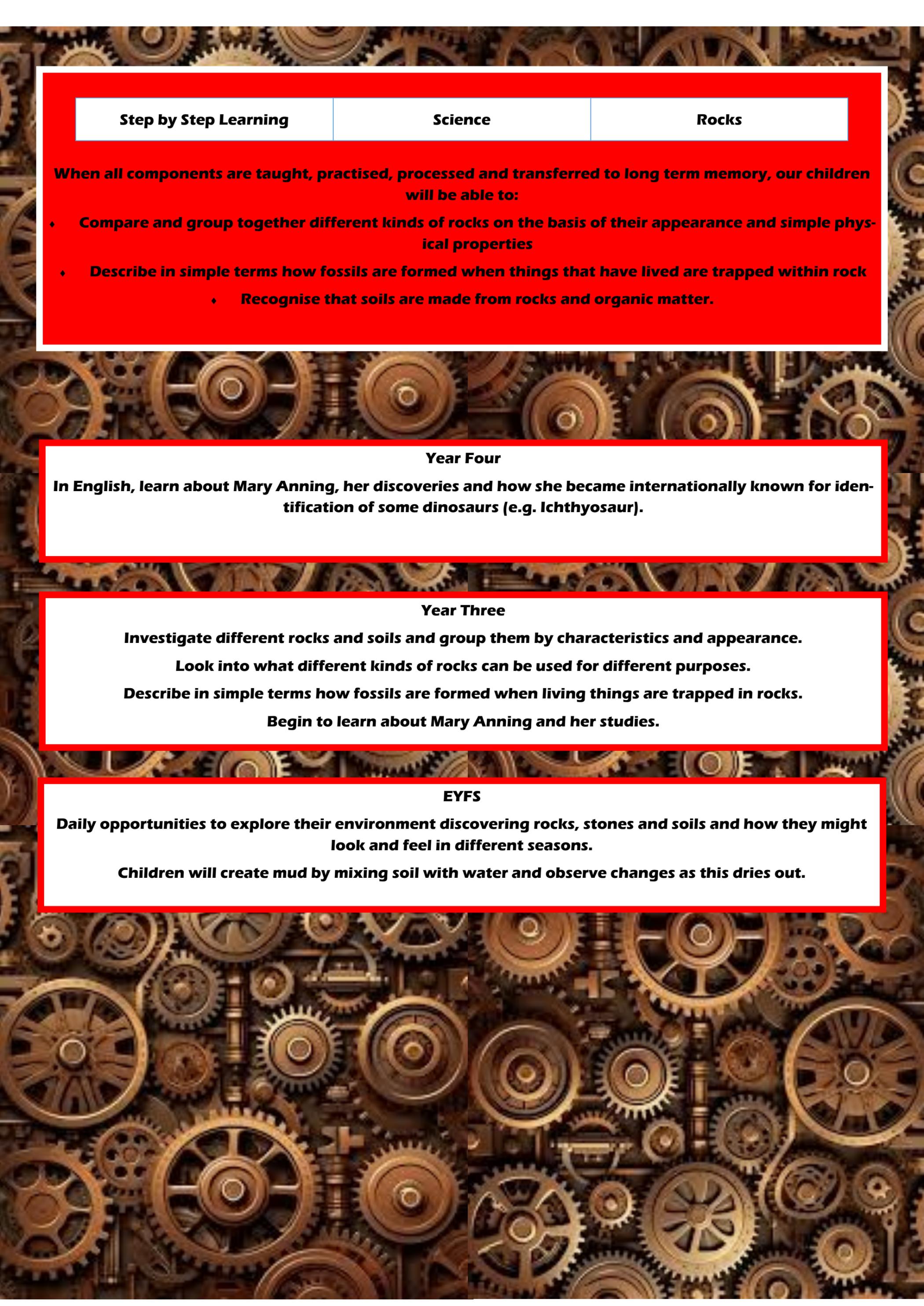
In Animals including Humans, pupils will learn about sounds when considering senses.

Children will learn about aspects of sound when using instruments, singing and listening to music.

Children will link to oracy lessons and learn about volume of speaking when performing to an audience.

EYFS

Explore music, move to different songs, play instruments with increasing control and listen with increased attention to sounds.



Step by Step Learning	Science	Rocks
-----------------------	---------	-------

When all components are taught, practised, processed and transferred to long term memory, our children will be able to:

- ♦ **Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties**
- ♦ **Describe in simple terms how fossils are formed when things that have lived are trapped within rock**
 - ♦ **Recognise that soils are made from rocks and organic matter.**

Year Four

In English, learn about Mary Anning, her discoveries and how she became internationally known for identification of some dinosaurs (e.g. Ichthyosaur).

Year Three

Investigate different rocks and soils and group them by characteristics and appearance.

Look into what different kinds of rocks can be used for different purposes.

Describe in simple terms how fossils are formed when living things are trapped in rocks.

Begin to learn about Mary Anning and her studies.

EYFS

Daily opportunities to explore their environment discovering rocks, stones and soils and how they might look and feel in different seasons.

Children will create mud by mixing soil with water and observe changes as this dries out.

When all components are taught, practised, processed and transferred to long term memory, our children will be able to:

- ♦ **Compare how things move on different surfaces**
- ♦ **Notice that some forces need contact between two objects, but magnetic forces can act at a distance**
 - ♦ **Observe how magnets attract or repel each other and attract some materials and not others**
- ♦ **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**
 - ♦ **Describe magnets as having two poles**
- ♦ **Predict whether two magnets will attract or repel each other, depending on which poles are facing**

Year Three

Investigate how things move on different surfaces and compare findings.

Use magnets to investigate how magnetic forces can act over a distance and do not need contact for movement to happen.

Observe how magnets attract and repel each other and attract some materials but not others.

Compare and group materials on their magnetic properties.

Investigate magnetic poles and make a compass!

EYFS

Learn how things might work using pulleys and levers.

Carry out investigations, both adult-led and independently, whilst considering floating and sinking.

Using investigative play, use magnets and tubes of iron filings to introduce and capture interest in magnetism.

When all components are taught, practised, processed and transferred to long term memory, our children will be able to:

- ♦ **Identify common appliances that run on electricity**
- ♦ **Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers**
- ♦ **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**
- ♦ **Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit**
- ♦ **Recognise some common conductors and insulators, and associate metals with being good conductors.**

Year Four

Learn about important scientists in the electrical field.

Discuss how to stay safe near electricity. Discuss power stations as a source of electricity.

Identify common household appliances that utilise electricity and construct a simple series circuit, labelling basic parts and recognising the need for a complete loop with a power source.

Investigate some common conductors and insulators and associate metals with being good conductors (identifying possible uses) .

Investigate how to increase the brightness of a bulb and whether a switch needs to be open or closed to complete a circuit.

EYFS

Discuss plugs and electrical safety. Use balloons to investigate static electricity.

Use iPads and torches to help with the notion that electricity does not have to come from a plug.

Teachers to model conservation of electricity and discuss energy saving ideas.

Whole School

Across the school, all children will learn about basic electrical safety and conservation through energy saving ideas.

Teachers will model good energy conservation and demonstrate saving electricity.

In assemblies, children will learn about saving energy.

Step by Step Learning

Science

Light

When all components are taught, practised, processed and transferred to long term memory, our children will be able to:

- ♦ **Recognise that they need light in order to see things and that dark is the absence of light**
 - ♦ **Notice that light is reflected from surfaces**
- ♦ **Recognise that light from the sun can be dangerous and that there are ways to protect their eyes**
- ♦ **Recognise that shadows are formed when the light from a light source is blocked by an opaque object**
 - ♦ **Find patterns in the way that the size of shadows change**

Year Three

Learn what a light source is and give examples, recognising that they need light to see and that dark is when we have no light.

Learn about light and dark, reflection, opaque and transparency.

Learn that light from the sun can be harmful and describe ways to protect themselves.

Investigate how shadows are formed and explain the difference between a shadow and reflection.

Look for patterns in the way that shadows change.

Discuss light and shade when they grow plants and consider the importance of photosynthesis.

Year Two

Discuss light and shade when they grow plants and consider the importance of photosynthesis. .

Year One

When studying seasonal changes, the amount of daily light we experience is compared with differing seasonal periods.

Discuss light and shade when they grow plants and consider the importance of photosynthesis.

EYFS

Discuss light when learning about festivals and celebrations (Diwali and fireworks).

Make observations about the sun and moon and children share their ideas.

Children to discuss the need for light when they grow plants.

Step by Step Learning

Science

Animals including Humans

When all components are taught, practised, processed and transferred to long term memory, our children will be able to:

- ♦ **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**
- ♦ **identify that humans and some other animals have skeletons and muscles for support, protection and movement**
 - ♦ **Describe the simple functions of the basic parts of the digestive system in humans**
 - ♦ **Identify the different types of teeth in humans and their simple functions**
- ♦ **Construct and interpret a variety of food chains, identifying producers, predators and prey**

Year Four

Learn the basics of the digestive system and how it functions.

Experiment how bodily waste is formed.

Identify and compare different teeth in carnivores and herbivores, learning what damages teeth and how best to look after them.

Construct a variety of food chains looking at different organisms.

Year Three

Design a healthy meal finding out what nutrition can be gained from different food types.

Find out about and name different basic parts of a human skeleton.

Learn that some animals are vertebrate and others invertebrate.

Learn how muscles help the body.

Year Two

Investigate what animals need to stay alive.

Explain the importance of a healthy diet and exercise.

Match the young to its adult using images and create the life cycle of an insect following on from a bug hunt.

Year One

Start to use scientific vocabulary to describe a variety of animals.

Compare and group them by features and what they eat.

Talk about and compare the structure of animals and their features.

Identify the main parts of the of the human body and name the 5 senses.

EYFS

Identify some animals, describing them and identifying simple body parts.

Name a variety of mini-beasts, identify some farm animals and describe some of their features.

Sequence the life cycle of a butterfly and compare this with other animals.

When all components are taught, practised, processed and transferred to long term memory, our children will be able to:

- ♦ **Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses**
- ♦ **Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.**
- ♦ **Compare and group materials together, according to whether they are solids, liquids or gases**
- ♦ **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)**
- ♦ **Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.**

Year Four

Re-cap learning from Year 2 and build on that knowledge by considering states of matter.

Learn about solids, liquids and gases, and how those states can alter to either a reversible or irreversible change.

Group materials together according to their state and observe what may happen if a material is heated or cooled.

Consider the role played by condensation and evaporation in the water cycle.

Year Two

Explore a range of materials and consider their suitability for making a range of everyday objects.

Discover that the shape of some materials can change by squeezing, twisting, bending and stretching.

Perform a simple experiment to test the suitability of a material for a given purpose, gathering and recording data to assist in answering questions.

Year One

Identify and name a range of everyday materials, comparing and grouping them together based on simple physical properties.

Distinguish between an object and the material from which it is made.

EYFS

Feel, play with and discuss a range of materials.

Identify, match and sort materials as well as choosing a particular material for a set purpose.

Step by Step Learning

Science

Plants

When all components are taught, practised, processed and transferred to long term memory, our children will be able to:

- ♦ **Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers**
- ♦ **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**
 - ♦ **Investigate the way in which water is transported within plants**
- ♦ **Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.**

Year Four

Identify that plants are the bottom of each food chain.

Year Three

Learn more about what plants need to survive and the functions of the parts of flowering plants.

Review best growing conditions, seasonal plants and vegetables.

Dissect and identify part of a flowering plant.

Describe in more detail the requirements for growth and how this may vary from plant to plant.

Investigate how water is transported in plants and explore the role played by flowers in a plant life cycle.

Year Two

Learn that new plants come from seeds.

Match some seeds with their plants and describe where the seeds can be found.

Identify bulbs and how they also allow some plants to grow back a year later when conditions allow.

Investigate the effect of light and dark, water and temperature on growing plants.

Suggest the best environment to grow some plants.

Year One

Name a variety of common and wild plants which will be grouped according to features.

Have conversations about deciduous and evergreen trees, plants and seasonal vegetables.

Describe the basic structure of a variety of common flowering plants and trees.

EYFS

Plant seeds and observe over time how they grow.

Observe how some plants grow differently and talk about reasons for this.

Shopping roleplay where conversations will include vocabulary about fruit and vegetables, plants and flowers.

Learn about seasons, months and days of the week.

Step by Step Learning

Science

Earth and Space

When all components are taught, practised, processed and transferred to long term memory, our children will be able to:

- ♦ **Identify different seasons and seasonal patterns**
- ♦ **Recognise that they live on the Earth and that the Sun and the Moon play a significant role in day and night**
- ♦ **Children will start to talk about the planets and recognise some planet names**

Moving On...

Earth and Space topic is limited to Year 5 in the National Curriculum but we recognise that we need to make links to it earlier than Year 5 for our children's understanding to develop.

Conversations are had throughout school about the Sun, Moon and planets (shadows Year 3) and in various texts during reading sessions.

Children will learn in greater depth more information about the Sun, Moon and other planets in Year 5 and beyond.

Years one to Four

Children will hold conversations with their peers and adults about seasonal changes, shadows, the existence of some planets and their names.

Children will learn about day and night in class discussions and assembly stories.

Year One

During discussions in Seasonal Changes topic, the weather is considered.

Children learn that the length of daylight hours changes in different seasons and that some animals hibernate/migrate during winter months.

EYFS

Learners will talk about days of the week and months of the year throughout EYFS.

The Sun and Moon are also discussed in a variety of situations and different texts.

When all components are taught, practised, processed and transferred to long term memory, our children will be able to:

- ♦ **Explore and compare the differences between things that are living, dead, and things that have never been alive**
 - ♦ **Identify that most living things live in habitats to which they are suited**
- ♦ **Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.**
 - ♦ **Recognise that living things can be grouped in a variety of ways**
- ♦ **Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment**
- ♦ **Recognise that environments can change and that this can sometimes pose dangers to living things.**

Year Four

Group living things in a variety of ways according to different criteria e.g. vertebrate/invertebrate or flowering/non-flowering.

Children may choose to group according to physical characteristics or habitats.

Learners will be introduced to a classification key and use a series of specific questions to help classify a variety of living things.

Identify that habitats can change due to both normal and human interventions and that living things often adapt but changes often pose dangers to living things.

Year Two

Identify things that are living, dead or have never been alive.

Group things into categories and start to explain why a category has been chosen.

Identify what living things need to stay alive and be introduced to the term 'habitat'.

Children will identify and link living things to their best habitat and explain reasons why.

Investigate micro-habitats and identify a range of plants and animals that live there.

Describe how animals obtain their food from plants and other animals, using a basic food chain.

EYFS

Children explore a range of plants and animals, talking about what they are, where they come from and which groups they belong to e.g. fish or birds.