

# Year 3 - Science- Food and Our Bodies

## Autumn | Knowledge Organiser

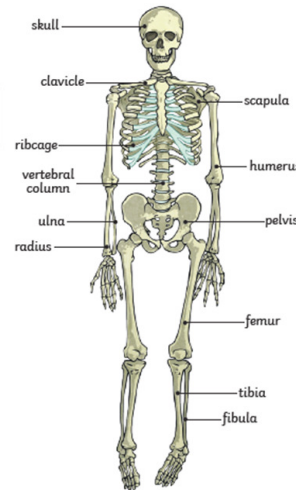
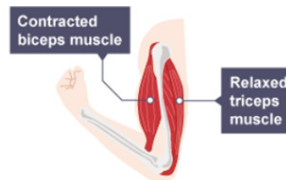


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This Science unit follows on from previous studies of the human body in Years 1 and 2. This unit will deepen the children's understanding of the body, so that they can identify that humans and some other animals have skeletons and muscles for support, protection and movement. They will learn about vertebrates and invertebrates alongside different types of skeletons. Children will learn about the main bones in the human body and identify the importance of muscles and how they work. As well as this, children will learn that animals need the right types and amount of nutrients and will learn different food types and functions of seven nutrients.

### Key knowledge

- Skeletons protect organs, allow movement and support the body.
- Animals are divided into vertebrates and invertebrates.
- All vertebrates have an endoskeleton while invertebrates may have an exoskeleton or hydrostatic skeleton.
- Skeletal muscles work in pairs to move the bones they are attached to, e.g. the biceps and triceps.
- Plants can make their own food, but animals cannot.



- Nutrients are found in food and drink.
- Water—2.5l (adults) and 1.3l-2.1l (children) a day.
- Carbohydrates—55%
- Fats—30%
- Protein—15%
- Cats need high amount of protein and fat is needed for fur and skin.
- Dogs need high percentage of carbohydrates, proteins and fats.



Nutrient	Food types	Function
<b>Carbohydrates</b>	Pasta Bread Potatoes	Provides energy
<b>Protein</b>	Red meat Fish Eggs	Helps growth and repair
<b>Fibre</b>	Wholegrain cereals Wholegrain bread	Helps you digest the food you have eaten.
<b>Fats</b>	Oil Butter Nuts Cheese	Provides energy
<b>Vitamins</b>	Orange Carrots Nuts Beef	Keeps your body healthy.
<b>Minerals</b>	Milk Spinach Sweetcorn	Keeps your body healthy.
<b>Water</b>	Water Tomatoes Cucumber Strawberries	Moves nutrients around your body and helps to get rid of waste.

### Key Vocabulary

**Vertebrates:** Animals with a backbone inside their body.

**Invertebrates:** Animals without a backbone. They have a soft body, like worms and jellyfish.

**Endoskeletons:** Animals that have skeletons on the inside of their bodies.

**Exoskeleton:** Type of invertebrate with skeletons on the outside of their bodies.

**Hydrostatic skeleton:** Animals with no bones and instead have fluid-filled compartments called a coelom.

**Muscles:** Soft tissues in the body that help us move.

**Nutrients:** Substances that animals need to stay alive and healthy.

### Key Questions

- What are the three important jobs of a skeleton?
- What is a vertebrate/invertebrate? What animals are vertebrates?
- What type of skeleton do all vertebrates have?
- What is an exoskeleton? What animals have an exoskeleton?
- What is a hydrostatic skeleton? What animals have a hydrostatic skeleton?
- What are the main bones in the human skeleton?
- What are muscles?
- How do all muscles work?
- How do the biceps and triceps in your arm work?
- What are nutrients? Where can they be found?
- What foods do you find proteins in? What is the job of proteins?
- What foods do you find fats in? What is the job of fats?
- How much of each nutrient do we need each day?
- What are unsaturated fats and why are they important?
- What are saturated fats? Why shouldn't we eat lots of them?

# Year 3 - Science- Opposites Attract

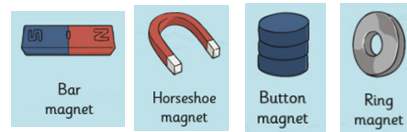
## Autumn 2 Knowledge Organiser



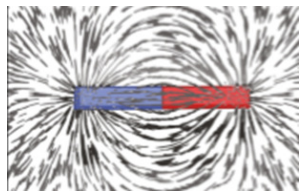
In this unit children will learn about the forces which are exerted between two objects. They will learn about forces in every day life such as friction and magnetism. They will focus on different types of magnets and investigate magnetic and non-magnetic materials.

### Key knowledge

- A **force** is a **push** or **pull** acting on an object.
- **Pushes** or **pulls** will always change the motion of an object. They will either make it start to move or speed up, slow it down or even make it stop.
- One of these forces is friction. The amount of **friction** created by an object moving over a **surface** depends on the roughness of the surface and the object. The smoother the surface, the less friction, therefore the quicker the object will move and the more difficult it will be for the object to stop. The rougher the surface, the more friction, therefore the slower the object will move and the easier it will be for the object to stop.



- A **magnet** is a special type of object. It produces an area of magnetic force around itself, called a **magnetic field**. The **magnetic field** is invisible to the naked eye.



However, if certain materials enter this **magnetic field**, they will be attracted to the **magnet** without the magnet even touching them. This will cause the materials to stick to the magnet. For example, if a magnet slowly moves towards a steel paper clip. As the paper clip enters the magnetic field around the magnet, it will 'jump' towards the magnet without the magnet even touching it.

- All magnets have a North pole and South pole. When you place the **North pole** of one magnet near the **South pole** of another magnet they are attracted together.



(e.g. North and **North** or **South** and **South**) they are repelled away from each other.



### Key Vocabulary

- Attract**— A non-contact pulling force between two opposite poles.
- Friction**— Is a pull force between two surfaces that slows an object down.
- Force** — A force is an action that makes something or someone move faster or slower, stop, change direction or change size or shape.
- Magnet**— Is an object that is made of materials that creates a magnetic field.
- Magnetic**— is a material that produces a magnetic field.
- Magnetic field** — A force around a magnetic material.
- Poles** —The end of all magnets are called its poles, one end is the North pole and the other is the South
- Pull**— To cause movement towards an object.
- Push**— To cause movement away from an object.
- Repel**—A non-contact pushing force between the same poles.
- Surfaces**— The outside layer of an object.

### Key Questions

- What is a force? What do all push and pull forces do?
- Can you explain how push and pull forces enable a bike or another object move and stop?
- What is friction?
- What effect does a surface have on the movement of an object?
- What is a magnetic field?
- What happens if certain objects enter a magnet's magnetic field?
- How do you know that materials are magnetic? Give some examples of materials that are magnetic?
- What are the different types of magnets?
- How do magnets differ from each other?
- What happens when a North pole of a magnet get nears the South pole of another magnet?
- What is magnetic 'attraction'?
- What happens when two like poles are placed near each other (e.g. North and North or South and South)?
- What is magnetic 'repulsion'?

## Science—Enquiry Approaches

### Knowledge Organiser



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ambitious for the future

Scientific enquiry approaches are part of our science curriculum and are the different ways that we can carry out scientific investigations.

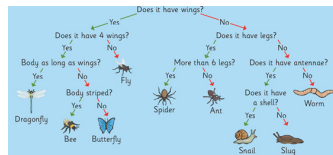
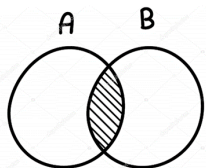
### Observing over time

- Use different senses.
- Observe changes over different periods of time.



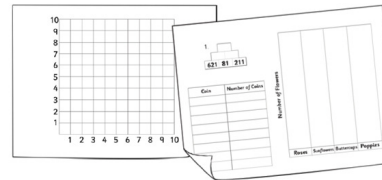
### Identifying and classifying

- Naming and grouping.
- Making connections, looking at similarities and differences.



### Pattern seeking

- All variables cannot be controlled.
- Look for relationships between variables



### Fair testing

- All variables are controlled.
- What you change is in **numbers**.



### Researching

- When we cannot investigate in school.
- Books, an expert, the internet.



### Comparative testing

- All variables are controlled.
- What you change is in **words**.

