Year 6- Animals including humans

National Curriculum:

Animals including humans

Pupils should be taught to:

- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- recognise the impact of diet, exercise, drugs and lifestyle on the way their body's function
- describe the ways in which nutrients and water are transported within animals, including humans

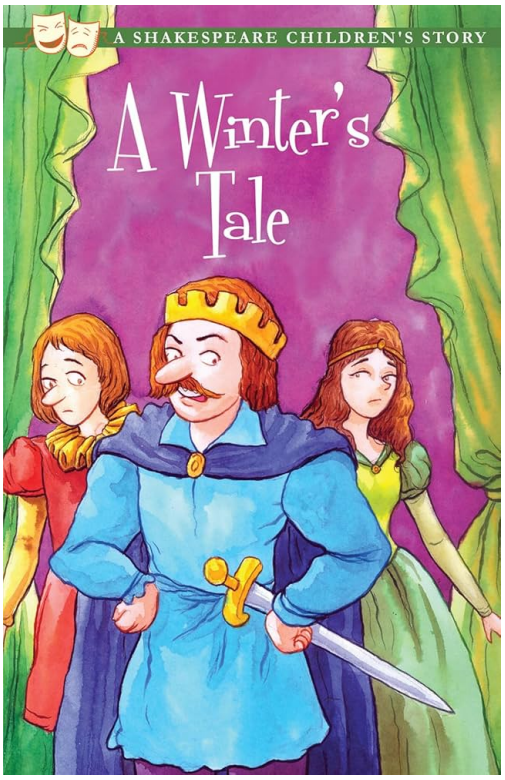
Working Scientifically:

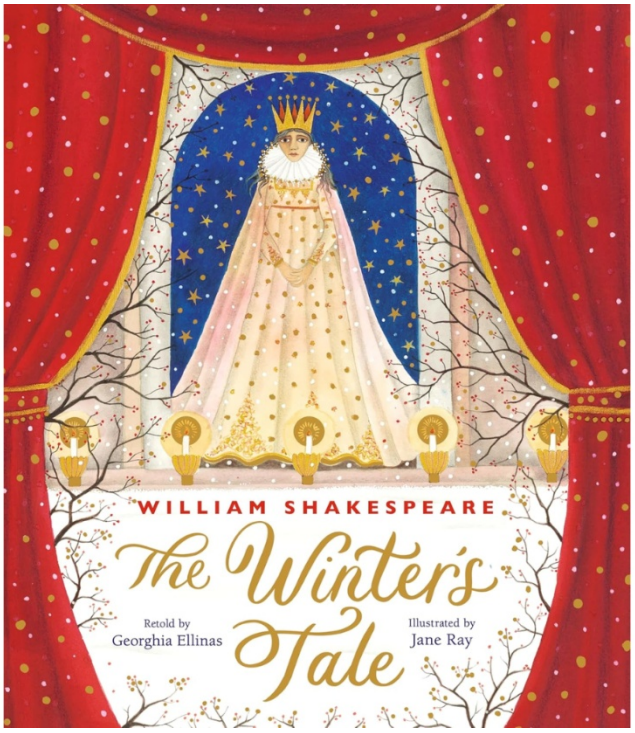
During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

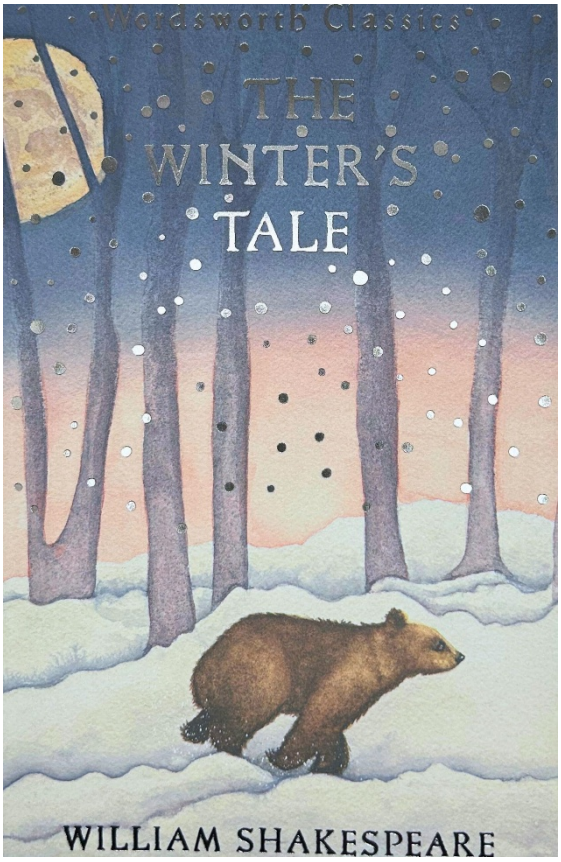
- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results 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 a 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

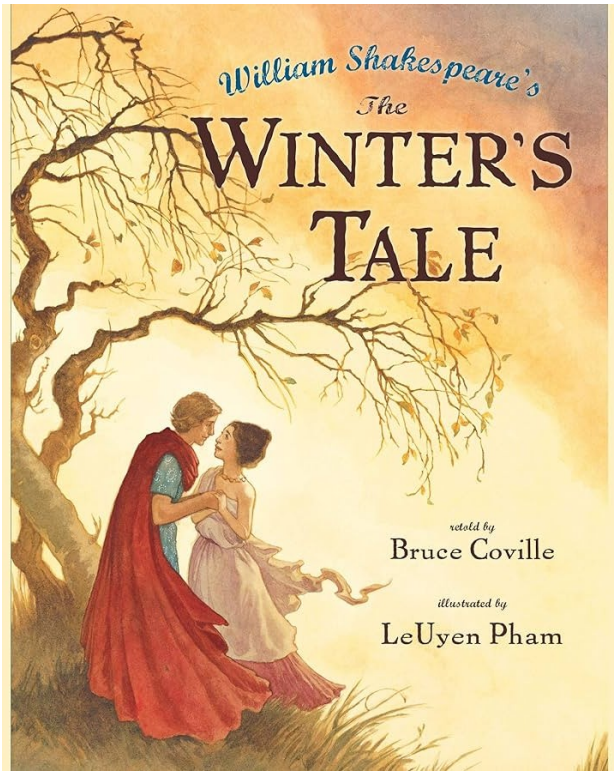
Year 6- Animals including humans

The Primary Shakespeare Company









Year 6- Animals including humans

Context

The Winter's Tale is a play written by **William Shakespeare** over 400 years ago (around 1611). It tells the story of a king named **Leontes**, who makes a serious mistake because of jealousy. His decisions affect his family, especially his daughter **Perdita**, who grows up away from her royal home.

The play is about **family, growing up, forgiveness, change, and the power of time**. It also includes scenes set in the countryside, where nature, animals, and farming play an important role.

Even though it is an old story, its themes are still relevant today because it explores **how people grow, learn, and change over time**.

Why This Links to *Animals Including Humans*

The science topic **Animals Including Humans** focuses on how living things **grow, survive, reproduce, and stay healthy**. This links closely with the story of *The Winter's Tale* because the play explores similar ideas through its characters and settings.

1. Growth and Life Cycles

Pupils learn how humans and animals **grow from babies into adults**. In the play, **Perdita grows from a baby into a young woman**, showing how time and environment affect development.

2. Family, Offspring, and Care

Humans and animals both **produce offspring and care for their young**. The play focuses on **parents, children, and family relationships**, helping pupils think about why caring for young is important.

3. Nature, Animals, and the Countryside

Much of the play takes place in a **rural farming setting with shepherds, sheep, and plants** , linking to learning about **animals, habitats, and nature** .

4. Humans as Animals

Science teaches that **humans are animals** with similar needs to other living things, such as **food, water, shelter, and care** . The play helps pupils explore **human emotions, instincts, and behaviour** .

5. Nature vs Nurture

Both science and the play explore how **environment affects growth and development** , showing how upbringing can shape behaviour.

LESSON 1 How Are Animals (Including Humans) Classified?

National Curriculum Link:

Describe how animals are classified into groups.

Shakespeare Link:

Animals referenced in *The Winter's Tale* (e.g., sheep, bear, birds). Discuss how these animals belong to different groups.

Working Scientifically

- Observing patterns
- Grouping and classifying
- Explaining decisions using evidence

Year 6- Animals including humans

Keywords

- **Classify** - *To classify is to sort into groups.*
- **Identify** - *To identify something is to be able to name it correctly.*
- **Vertebrate** - *A vertebrate is an animal with an internal skeleton, including a spine.*
- **Invertebrate** - *Animals that do not have bones, including a spine, on the inside of their bodies* are invertebrates.
- **Classification key** - *classification keys are diagrams which help us sort things into different* groups.

Starter (5 ~10 mins)

Show quotes from *The Winter's Tale* mentioning animals. Source 1

Ask: *What animals are mentioned? How could we group them? Watch the video to recap classification.*

https://www.youtube.com/watch?v=ITrRMiQB8g4

Starter- Activity 1- Chn to read the quotes and to classify the animals.

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Quotes About Animals in *The Winter's Tale*

Sheep

"Let me see; what am I to buy for our sheep-shearing feast? "

~ Act 4, Scene 3

Meaning: This refers to a festival linked to sheep and farming, showing the importance of animals in rural life.

The Famous Bear

"Exit, pursued by a bear. "

~ Act 3, Scene 3

Meaning: A dramatic stage direction showing nature and animals as powerful and unpredictable.

Cattle

"We may be merry now. " *(spoken by the Shepherd)*

Context includes caring for animals and livestock in the countryside.

Meaning: Highlights the simple, animal-centred farming lifestyle.

Birds

"The birds and the bees. " *(idea echoed in pastoral scenes)*

Meaning: Shows nature as lively and full of growing life.

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Dogs

"The shepherd 's note of the dog. "

~ Act 3, Scene 3

Meaning: Shows working animals helping humans on farms.

Animal Comparison (Snake)

"He 's a serpent. "

~ Act 1, Scene 2

Meaning: A character is compared to a snake, showing how animals are used to describe human behaviour.

Lion Comparison

"A lion 's whelp. "

~ Act 2, Scene 3

Meaning: Suggests strength and bravery using an animal image.

Nature & Living Creatures

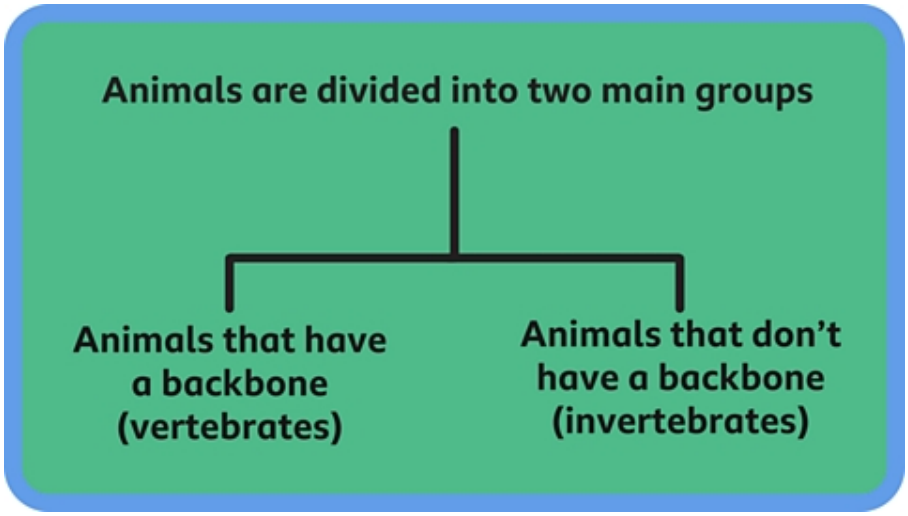
"Daffodils, that come before the swallow dares. "

~ Act 4, Scene 4

Meaning: Links animals (birds) with seasonal change and nature.

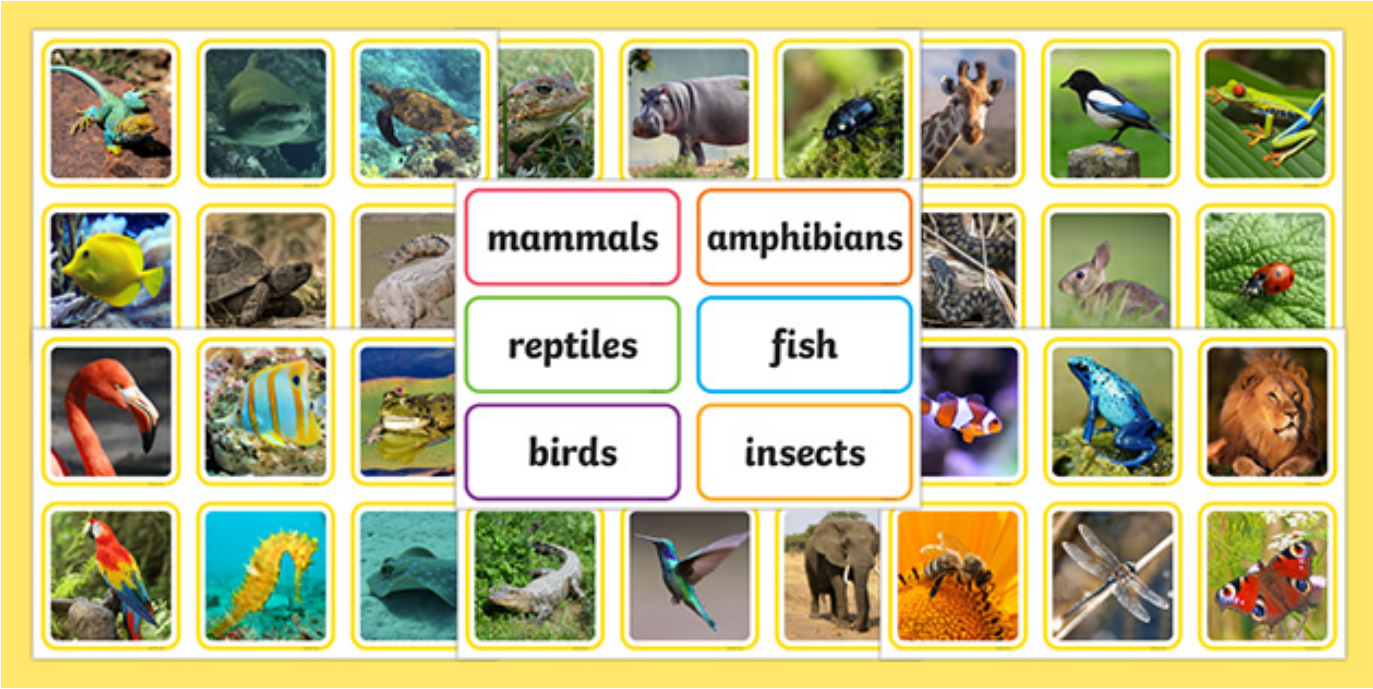
Lesson Outline

- Recap vertebrates vs invertebrates

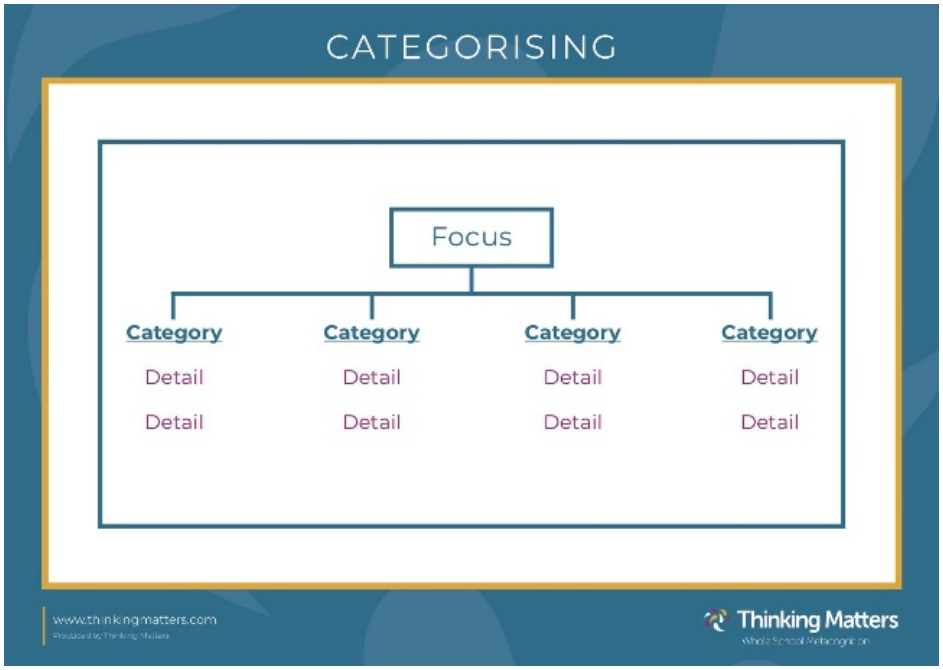


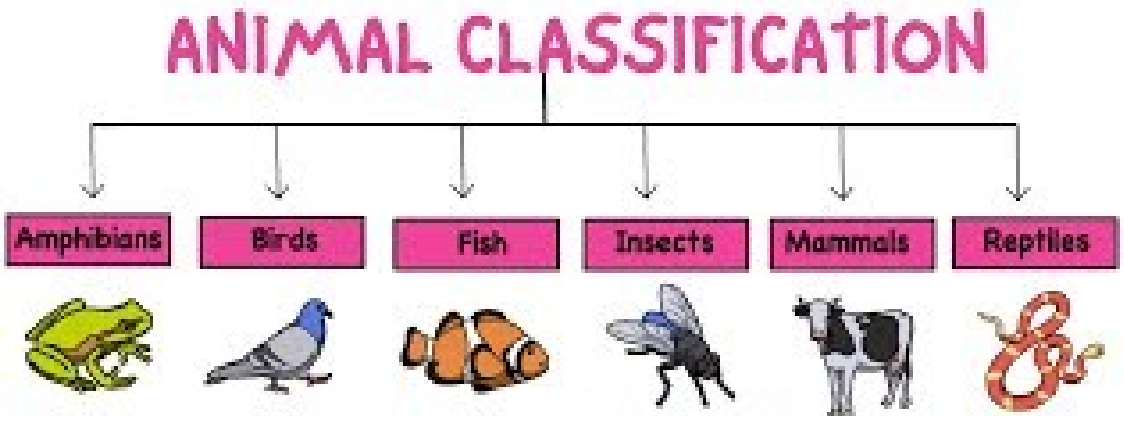
- Explore classification groups (mammals, birds, reptiles, amphibians, fish)
- Activity 2- how many animals can they name?

Activity 2



Sorting activity: pupils classify animals including humans- create a categorising frame. Activity 3





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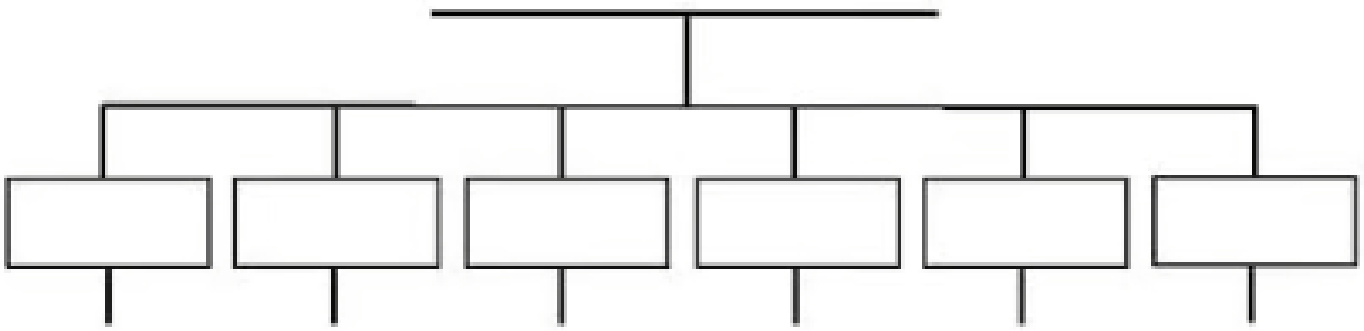
Activity 3



Plenary

Pupils justify one classification choice.

Assessment / Key Questions / Exit Ticket

- *Why are humans mammals?*
- *How do scientists classify animals?*
- **Exit Ticket:** Name two features of mammals.

LESSON 2 The Human Circulatory System

National Curriculum Link:

Describe the functions of the heart, blood vessels, and blood.

Shakespeare Link:

Explore Shakespeare's use of the heart as a symbol of life and emotion.

Working Scientifically

- Using models
- Interpreting diagrams
- Explaining biological processes

Starter - Read quotes referencing the heart. Activity 1

Ask: *What does the heart do scientifically vs symbolically?*

Activity 1

From The Winter 's Tale

❤ **"My heart dances, but not for joy. "**

Meaning: The heart is used to show **sadness or emotional pain** , even when someone tries to hide it.

❤ **"My heart is true. "**

~ Richard III

Meaning: The speaker says they are **honest and loyal** .

❤ **"My bounty is as boundless as the sea, my love as deep. "**

~ Romeo and Juliet

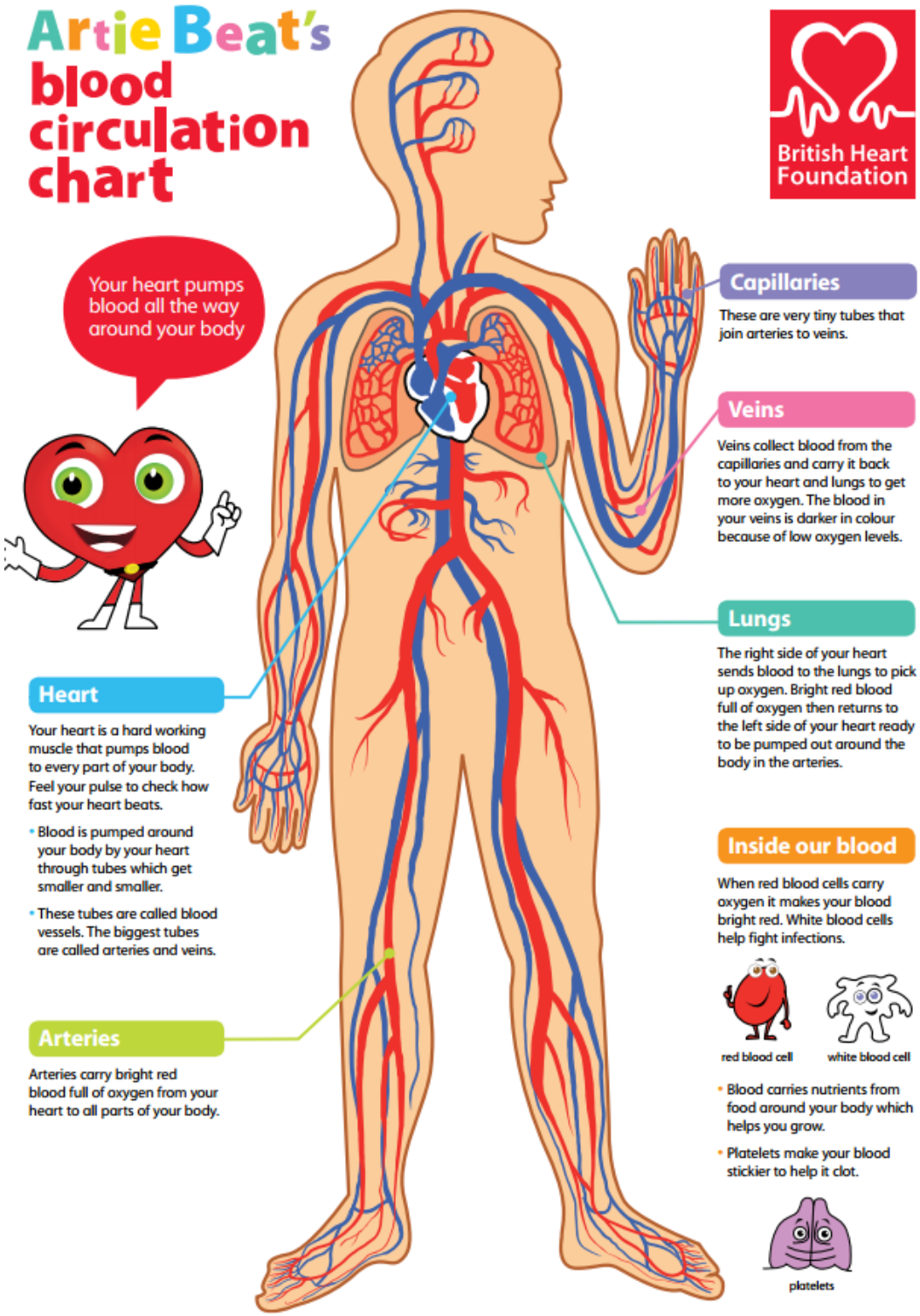
Meaning: Love comes from the heart and is **strong and endless** .

❤ **"False face must hide what the false heart doth know. "**

~ Macbeth

Meaning: Someone may **hide their true feelings** .

Lesson Outline



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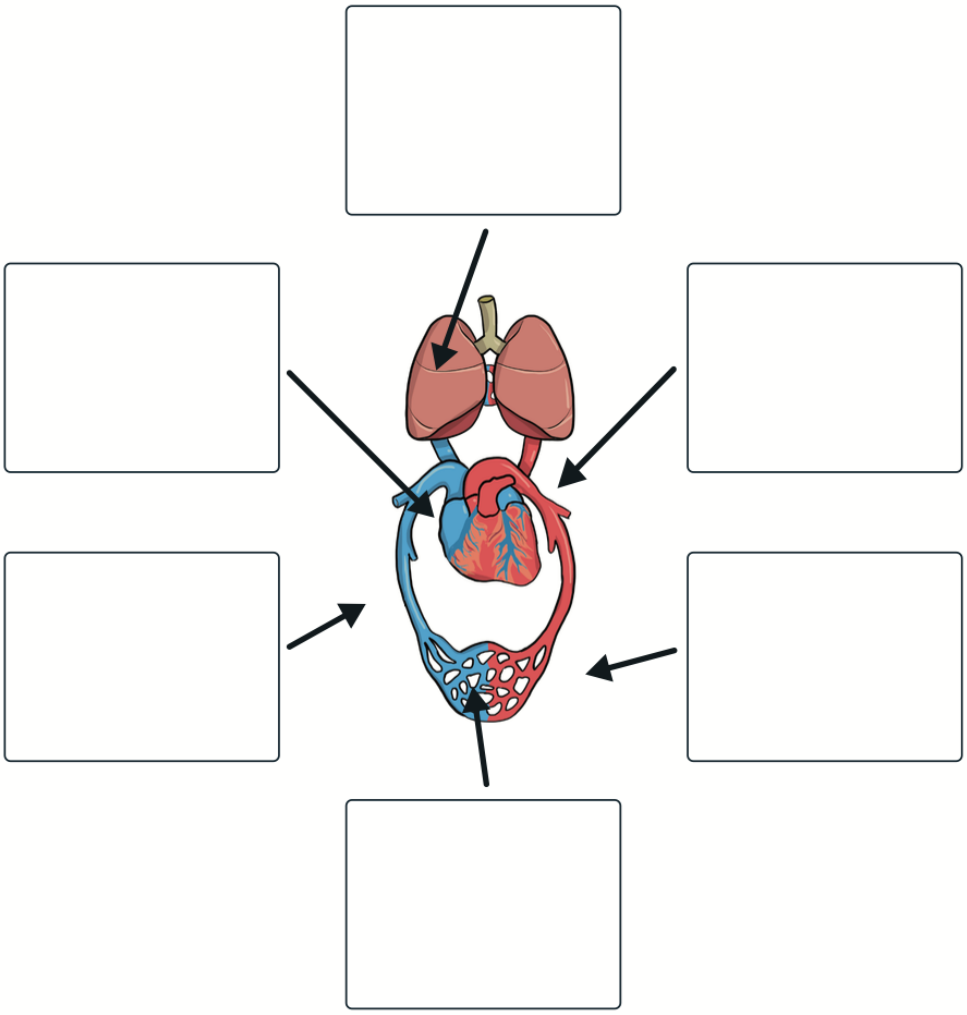
- Learn parts of circulatory system- Watch the video. Chn to make notes on their whiteboards or in their books. https://www.youtube.com/watch?v=pjOxpLEynIE OR
- https://www.youtube.com/watch?v=mC7-XXmbF90
- Give the children handout 1- go through as a class.
- Label diagrams of heart and blood vessels- Activity 2

Activity 2



Keywords

heart, vein, artery, blood, lungs, oxygen, nutrients, water, rest of the body

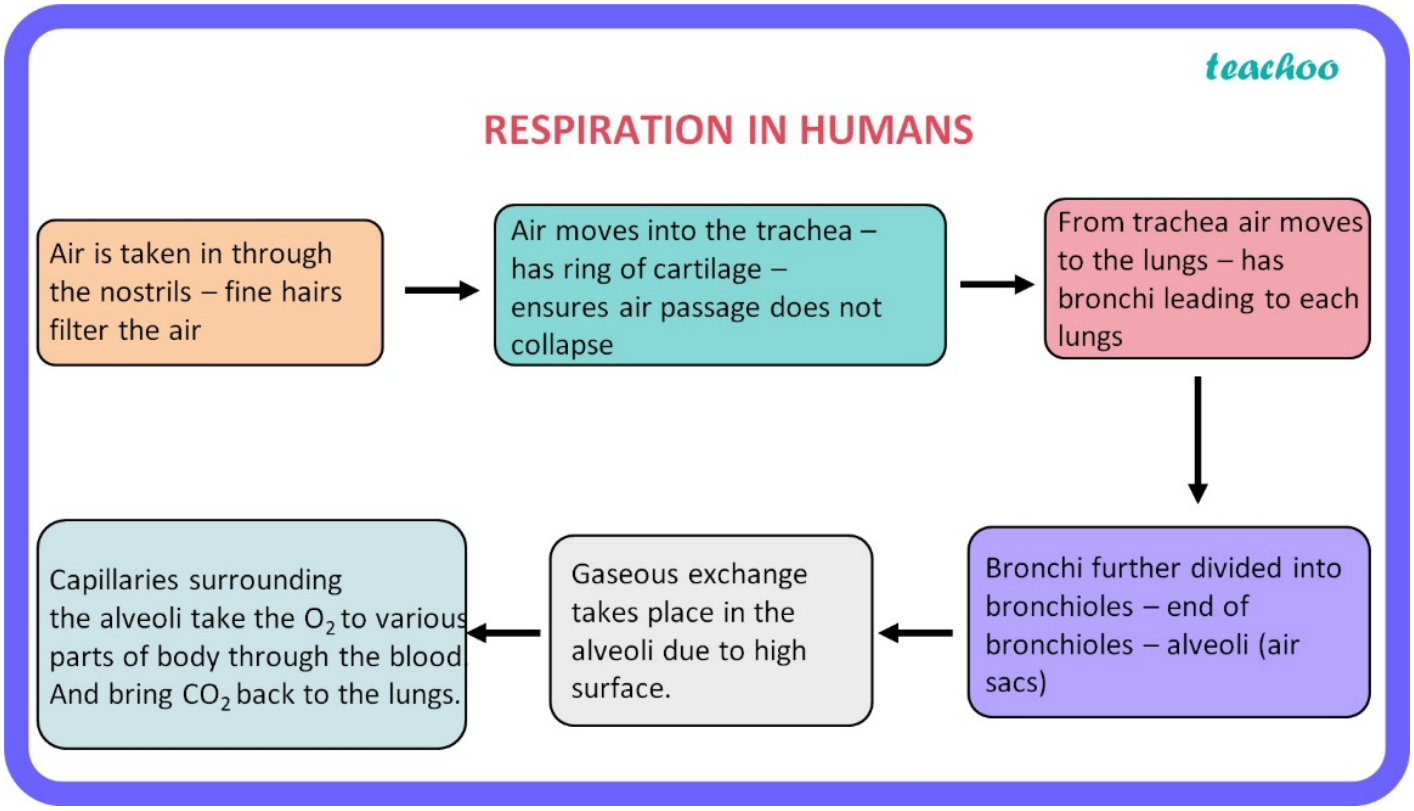
Group task: explain how oxygen travels through the body. Chn to create their own flow map.

Activity 3

Watch the video. Chn to take notes and draw diagrams.

https://www.bbc.co.uk/bitesize/articles/zdfs47h#z7mncxs

Example



Handout 2

Think of your body's oxygen delivery like a busy **postal service** . It needs to get special "oxygen packages" from the air all the way to your toes!

1. The Entrance (Breathing In)

When you inhale through your **nose or mouth** , air travels down your **trachea** (windpipe). This pipe splits into smaller and smaller tubes—like the branches of an upside-down tree—until it reaches millions of tiny, stretchy air sacs called **alveoli** .

2. The Great Swap (Gas Exchange)

The **alveoli** are the most important stop! They have very thin walls and are surrounded by tiny blood vessels called **capillaries** .

- **Oxygen** jumps from the air sac into your blood.
- **Carbon dioxide** (the waste gas) jumps out of your blood into the air sac to be breathed out.

3. The Delivery Vans (Red Blood Cells)

Inside your blood, special **red blood cells** act like little delivery vans. They contain **haemoglobin** , a protein that works like a magnet to grab the oxygen and hold it tight. This makes your blood look bright red.

4. The Powerhouse (The Heart)

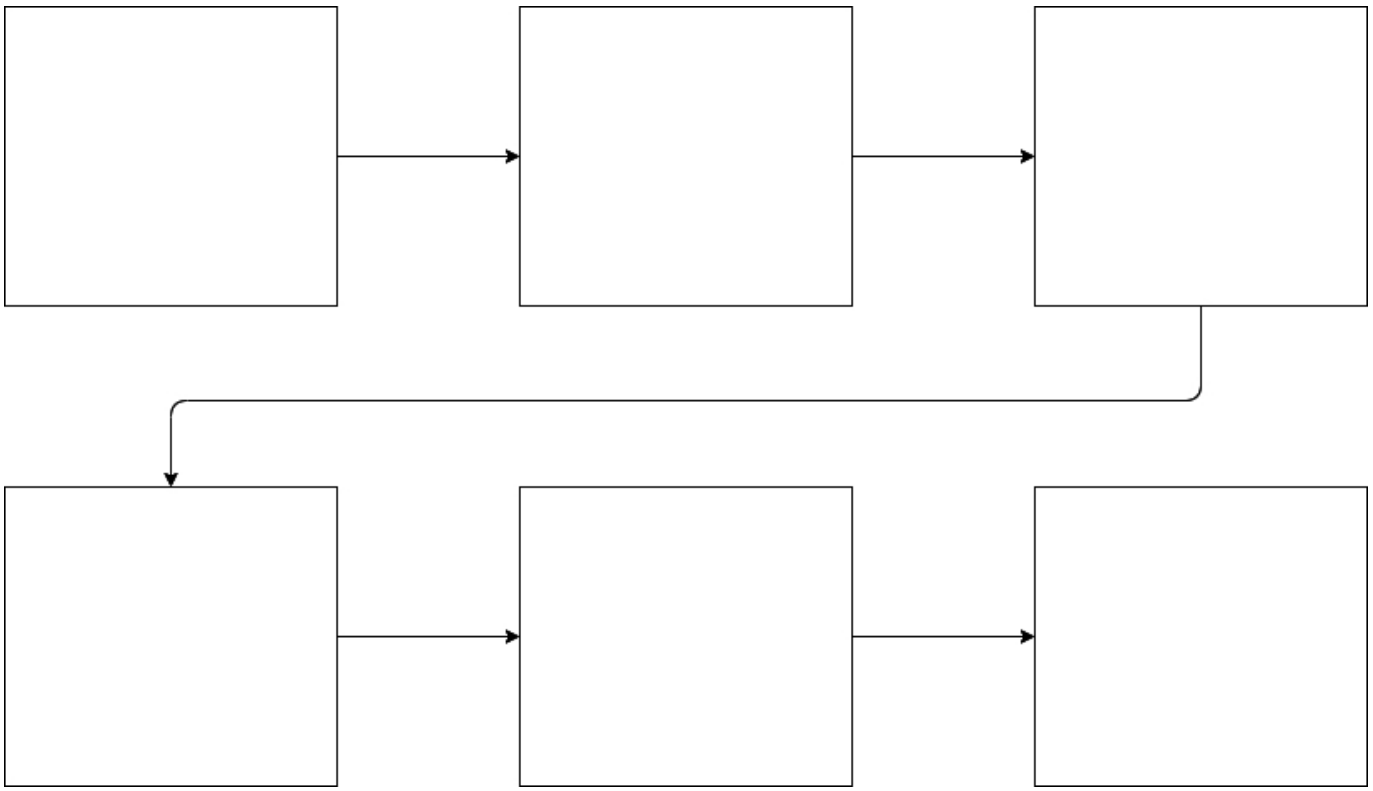
This oxygen-rich blood travels back to your **heart** . Your heart is a powerful pump that gives the blood a big push, sending it through tubes called **arteries** to reach every part of your body.

5. Dropping Off the Goods

When the "delivery vans" reach your muscles or brain, they drop off the oxygen so your cells can use it to create **energy** . Once empty, the blood travels back through **veins** to the heart to start the whole trip again!.

Would you like to know how your **heart rate** *changes when you exercise to speed up these* deliveries?

Activity 3



Handout 1

Plenary

Pupils explain the journey of blood in one sentence.

Blood travels from the heart to the body through arteries, delivers oxygen and nutrients, returns to the heart through veins, and then goes to the lungs to get oxygen before repeating the cycle.

Or

Blood travels from the heart to the body to give oxygen, then back to the heart and lungs to get more oxygen.

Assessment / Exit Ticket

What is the function of red blood cells? The function of red blood cells is to carry oxygen from the lungs to all parts of the body.

- **Exit Ticket:** One fact about the heart

LESSON 3 Exercise and Heart Rate Investigation

National Curriculum Link:

Recognise the impact of exercise on the body.

Shakespeare Link:

Discuss physical activity and strength in Shakespeare's characters.

Working Scientifically

- Planning an investigation
- Measuring accurately
- Recording and analysing data
- Drawing conclusions

Starter

Predict: *What will happen to heart rate after exercise?*

Year 6- Animals including humans

Lesson Outline

- Measure resting heart rate
- Perform short exercise
- Measure heart rate again
- Record results in tables- Activity 1
- Discuss patterns

Complete the heart rate investigation.

HEART RATE INVESTIGATION

You'll need:

A stopwatch
Pen/paper
Space to move around

When your heart beats, it sends a wave of pressure through all your veins. You can feel this pressure in some areas of the body (such as when a vein passes over a piece of bone). We call this your pulse. One place to feel your pulse is on your wrist in a straight line at the base of your thumb.

Instructions

Record pulse rate at rest, by counting pulse beats on the wrist for 1 minute.
Run around outside or do star jumps for 1 minute.
Immediately record pulse rate again
Rest for 1 minute.
Record pulse rate again.
Find out how long it takes for the pulse rate to return to the resting level.

Why does heart rate increase with exercise ?

When we exercise muscles require more energy than when at rest. Energy is made during a process called respiration which needs oxygen and glucose. The heart beats faster during exercise to increase blood flow to muscles and cells so they get the extra oxygen and glucose needed to work harder.

If you count your pulse for 1 minute, that gives you your pulse rate. You can do it for shorter periods, but you must remember to convert it to beats per minute. So, if you time it for 30 seconds, you would have to double your pulse count to get the number of beats per minute.

Activity 1

HEART RATE AND EXERCISE

Initial heart rate .....

Exercise/Rest	Heart Rate (bpm)

Fastest heart rate .....

Slowest heart rate .....

Plenary

Groups share findings and conclusions.

Assessment / Exit Ticket

- *Why does heart rate increase during exercise? Heart beats faster during exercise to send more oxygen and energy to your muscles.*
- **Exit Ticket:** One conclusion from today's experiment

LESSON 4 Nutrition and a Balanced Diet

National Curriculum Link:

Describe nutrients and the importance of a balanced diet.

Shakespeare Link:

Discuss feasts and food in *The Winter's Tale* and how diet affects health.

Working Scientifically

- Researching
- Comparing
- Evaluating health choices

Starter

Show images of foods from Shakespearean times vs modern food. Handout 1

Lesson Outline

- Learn about nutrients (carbs, protein, fats, vitamins, minerals)

Handout 2

Carbohydrates (Carbs) ~ Energy food

- Gives your body energy to run, play, and think.
- Found in: bread, rice, pasta, potatoes, cereal.

Protein ~ Body builder

- Helps your muscles, skin, and hair grow and repair.
- Found in: meat, fish, eggs, beans, nuts.

Fats ~ Energy and warmth

- Gives extra energy and keeps you warm; too much is not good.
- Found in: butter, oil, cheese, nuts, avocado.

Vitamins ~ Body helpers

- Keep your body working properly and help fight sickness.
- Found in: fruits, vegetables, milk.
- Example: Vitamin C in oranges helps heal cuts.

Minerals ~ Strong body helpers

- Help your bones, teeth, and blood stay healthy.
- Found in: milk (calcium), meat (iron), salt (sodium).

- Analyse meal examples- Handout 3

Handout 3

🥪 Meal 1: Cheese Sandwich, Apple, Water

- **Carbohydrates:** bread → gives energy
- **Protein:** cheese → helps muscles grow
- **Fats:** cheese → keeps you full
- **Vitamins:** apple → helps fight illness

☑ **Healthy, balanced lunch**

🍝 Meal 2: Pasta with Tomato Sauce, Yogurt

- **Carbohydrates:** pasta → energy for the body
- **Vitamins:** tomatoes → keep body healthy
- **Protein & Minerals:** yogurt → strong bones and teeth

☑ **Good energy meal**

🍔 Meal 3: Burger, Chips, Fizzy Drink

- **Carbohydrates:** bun and chips → energy
- **Protein:** burger → body builder
- **Fats:** chips and burger → too much can be unhealthy
- **Vitamins:** very few

⚠ **Okay sometimes, not every day**

Year 6- Animals including humans

- Design a balanced meal plan. Use the meal planner to create notes. Activity 1
- Must be detailed and explain why it is balanced- see examples below.

Activity 1

	BREAKFAST	LUNCH	DINNER	SNACKS
MONDAY				
TUESDAY				
WEDNESDAY				
THURSDAY				
FRIDAY				
SATURDAY				
SUNDAY				

Activity 2- Example

Balanced Meal Plan (One Day)

Breakfast

- Wholegrain cereal
- Milk
- Banana

Why it's balanced:

Carbs give energy, milk has protein and calcium, fruit gives vitamins.

Snack

- Apple
- Small yogurt

Why it's balanced:

Vitamins from fruit and protein for growing bodies.

Lunch

- Chicken sandwich (wholemeal bread)
- Carrot sticks
- Water

Why it's balanced:

Carbs for energy, protein for muscles, vegetables for vitamins.

Snack

- Handful of grapes

  Why it's balanced:

  Fruit gives vitamins and keeps you healthy.

Dinner

- Grilled fish or chicken
- Rice or potatoes
- Broccoli and peas

  Why it's balanced:

  Protein helps growth, carbs give energy, vegetables give vitamins and minerals.

Plenary

Pupils justify why their meal is balanced.

Assessment / Exit Ticket

- *Which nutrient gives energy?*

  Carbohydrates are the body's **main source of energy** . They help us **move, think, play, and grow**.

Exit Ticket: Name two nutrients and their functions

Year 6- Animals including humans

LESSON 5 Adaptation, Survival, and Seasonal Change

National Curriculum Link:

Describe how animals adapt to environments.

Shakespeare Link:

Connect to themes of **nature, seasons, survival, and rebirth** in *The Winter's Tale*.

Working Scientifically

- Identifying patterns
- Explaining cause and effect
- Using evidence to support ideas

Starter - Read a short quote about winter and nature.

"Now is the winter of our discontent. "

~ Richard III - It uses winter as a way to describe a cold, unhappy time.

"How like a winter hath my absence been

From thee, the pleasure of the fleeting year! "

~ Sonnet 97- (Shakespeare describes winter's cold bareness as part of nature)

Ask: How do animals survive winter? You can follow up with hints like:

- Do they **sleep** or **hide**?
- Do they **move to warmer places** ?
- Do they **store food** ?

Go through handout 1 once you have discussed fully.

Handout 1

1. Hibernation

Some animals **sleep through winter** to save energy.

Examples: Bears, hedgehogs, bats

How it helps: Their heart rate and breathing slow down, so they **use less energy** .

---

2. Migration

Some animals **travel to warmer places** where there is more food.

Examples: Swallows, geese, butterflies

How it helps: They **avoid cold temperatures** and **find more food** .

---

3. Storing Food

Some animals **collect and store food** before winter begins.

Examples: Squirrels, beavers

How it helps: They have food to eat when it's hard to find.

---

4. Growing Thicker Fur or Feathers

Many animals grow a **thicker coat** to keep warm.

Examples: Foxes, deer, wolves

How it helps: The extra fur **traps heat** close to their body.

---

5. Slowing Down (Torpor)

Some animals become **less active** but don't fully hibernate.

Examples: Frogs, birds overnight

How it helps: They **save energy** when food is scarce.

6. Living in Groups

Some animals **huddle together** to share warmth.

Examples: Penguins, bees

How it helps: Group warmth helps them **stay warm** .

7. Camouflage in Winter

Some animals change colour to **blend into snow** .

Examples: Arctic hare, snowshoe hare

How it helps: They stay **hidden from predators** .

Year 6- Animals including humans

Lesson Outline

- Explore adaptations (fur, camouflage, migration, hibernation) https://www.bbc.co.uk/bitesize/topics/zxfrwmn/watch/z4ks4wx
- Compare animal vs human adaptations

Adaptation	Animals	Humans
Keeping warm	Grow thick fur, hibernate, migrate	Wear clothes, build shelters, use heating
Finding food	Hunt, store food, change diet with seasons	Shop for food, grow crops, cook meals
Protecting themselves	Camouflage, sharp claws, run fast	Use tools, wear protective gear, build safe homes
Moving around	Fly, swim, run fast	Walk, drive, use bicycles/cars
Surviving weather	Grow thicker fur in winter, hibernate	Wear seasonal clothing, use heating or air conditioning

Activity- Creative task: design an adapted animal- Handout 2

Handout 2 - Task: Design Your Own Adapted Animal

Instructions:

1. **Pick a habitat** ~ cold, desert, rainforest, ocean, etc.
2. **Think about challenges** ~ What is hard about living there? (Too hot? Too cold? Not enough food?)
3. **Create an animal** ~ Draw or describe it!
    - **Body covering:** fur, scales, feathers, thick skin?
    - **Special features:** big eyes, long legs, strong claws, wings?
    - **Food & water:** How does it eat or drink?
    - **Survival trick:** Hibernates, stores food, can run fast, camouflage?

Example:

- Habitat: Arctic
- Animal: "Snowpaw" ~ a fox with thick white fur, wide paws to walk on snow, and a tail that keeps it warm.

Bonus: Give it a **fun name** and **write a sentence** about how it survives in its home!

Plenary

Pupils present their adapted animal.

Assessment / Exit Ticket

- *How does adaptation help survival?*
- **Exit Ticket:** One adaptation and why it helps