



Year 6

Home Learning Pack –

**LEARNING QUESTION**

Week 7

## YEAR 6 – LEARNING QUESTION – WEEK 7 – LESSON 1 TO 5: A Guide and instructions

### Science Learning Question: How are living things classified?

This is the second pack for this Learning Question. It has five lessons to complete over five days. Please do not do more than this and make sure you give yourself a break. This will also help the teachers to see and check your work. Try to keep up with the learning as much as possible and try your best, we know it is a little different this time.

- Everything you need is in this pack and labelled so you know what lesson to complete and what sheet to use.
- There are **YouTube** videos for most lessons on the Mount Pleasant Junior School channel – search carefully for the video title that is described for each lesson. (Please be patient as not all videos will be uploaded at the same time). We have a **Year 6 playlist on our YouTube channel** to make it easier to find your lessons.
- I can email you the PowerPoint slides if you cannot access the videos but please let me know.
- Please send any work or questions to [year6@mpjs.org.uk](mailto:year6@mpjs.org.uk) and we will respond as soon as we can.

Below is a guide for each lesson:

#### LESSON 1:

*YouTube video: Year 6 LQ Week 7 – Lesson 1*

- MQ2: How are living things grouped? Today we will start by reviewing our learning from last week about different groups within the animal kingdom.
- **LESSON 1 ACTIVITY 1.** Review: What type of animal are the statements true for? Revisit your spider diagrams from last week to help you tick the group that each statement applies to. The first one has been completed for you.
- **LESSON 1 ACTIVITY 2.** MQ3: How can a key help to identify plants? Today we will look at how dichotomous keys can help us identify different plants. The word dichotomous comes from two Greek words that mean divide in two parts. As each question is asked the groups continue to divide into two until all of the groups have only one member. Use the dichotomous key to put the 8 different types of plants into the correct box.

#### LESSON 2:

*YouTube video: Year 6 LQ Week 7 – Lesson 2*

- MQ4: How can a key help to identify trees? Today we will explore keys that can help us identify which type of tree a leaf belongs to. We will also explore some vocabulary to help you prepare for your next lesson.

- **LESSON 2 ACTIVITY 1.** Follow the questions in the dichotomous key to identify the 6 different types of leaf. Once you have used the key to find out the name of the leaf, make sure you label each of the leaves.
- **LESSON 2 ACTIVITY 2.** Read about leaves and their different characteristics then use the information to help you draw and label some of the leaves. (You can use your observational drawing from last week and label it). Remember to look very closely at the edges of the leaves.

### **LESSON 3:**

*YouTube video: Year 6 LQ Week 7 – Lesson 3*

- MQ4: How can a key help to identify trees? Today you will make your own dichotomous key for leaves.
- **LESSON 3 ACTIVITY 1** – To make your own dichotomous key you will choose physical characteristics that can be used to divide your leaf collection into two parts. You will continue to divide each group in two until all of the groups have only one member.
- Follow the steps to make your own key. If you can find leaves on your daily walk, you can use them. If not, use the pictures in your pack. There are some characteristic prompts in your pack to help you think about the shared characteristics.
- **Challenge:** Use the flowchart in your pack (or draw your own) to write questions to help others to classify your leaves. Look at Lesson 1 Activity 2 to support you.

### **LESSON 4:**

*YouTube video: Year 6 LQ Week 6 – Lesson 4*

- MQ5: Why was the work of Carl Linnaeus important? Today we will revisit the work of Carl Linnaeus and think about his contribution to classification.
- **LESSON 4 ACTIVITY 1:** Reading comprehension. Read all about Linnaeus (and how he changed classification) then answer the questions.

### **LESSON 5:**

*YouTube video: Year 6 LQ Week 6 – Lesson 4*

- MQ5: Why was the work of Carl Linnaeus important? Today you are going to experiment with using the Linnean system of classification.
- We learnt yesterday that Linnaeus split nature into three kingdoms: animals, plants and minerals. He then split the kingdoms into **five smaller ranks** – first “**class**”, then “**order**”, then “**family**”, then “**genus**” and finally, “**species**”.
- Look at the different mammals in your pack. Each one has information about the smaller ranks they have been split into. Cut out the pictures of the mammals (there is a set in your pack) then use the information about each one to complete the taxonomy diagram.
- Once you have done this, add the binominal name of each mammal to the table.

**Lesson 1 –  
LEARNING  
QUESTION**

## LESSON 1 ACTIVITY 1: Review: What type of animal are the statements true for?

Remember to look at your spider diagrams from last week to help you. The first one has been completed for you.

### Animal Facts:

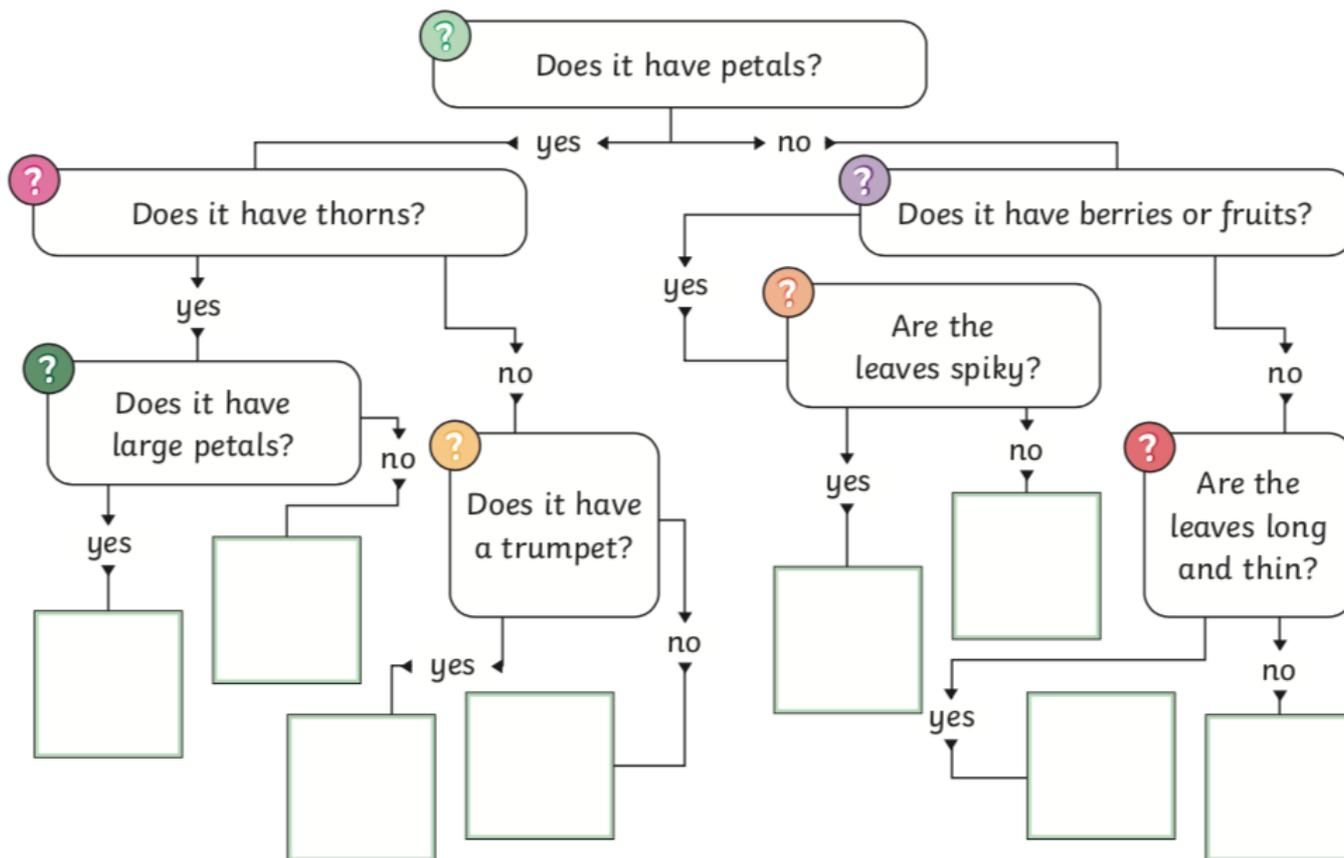
	Statement	mammal	bird	reptile	amphibians	fish
1	It is cold-blooded.			✓	✓	✓
2	It is warm-blooded.					
3	It has scales and fins.					
4	It lays eggs.					
5	It gives birth to live young.					
6	It can live on land and under water.					
7	It has webbed feet and wet skin.					
8	It has feathers and wings.					
9	It has scales and dry skin.					
10	The mother provides babies with milk.					
11	It has fur.					

*(Check your answers at the end of the pack)*

## LESSON 1 ACTIVITY 2: Using dichotomous keys

The word dichotomous comes from two Greek words that mean divide in two parts. As each question is asked the groups continue to divide into two until all of the groups have only one member. Using keys like this help us to identify and classify plants.

**Your task:** Use the dichotomous key below to put the 8 different types of plants into the correct box.



Where do these 8 different plants belong in the key above?



**Lesson 2 –  
LEARNING  
QUESTION**

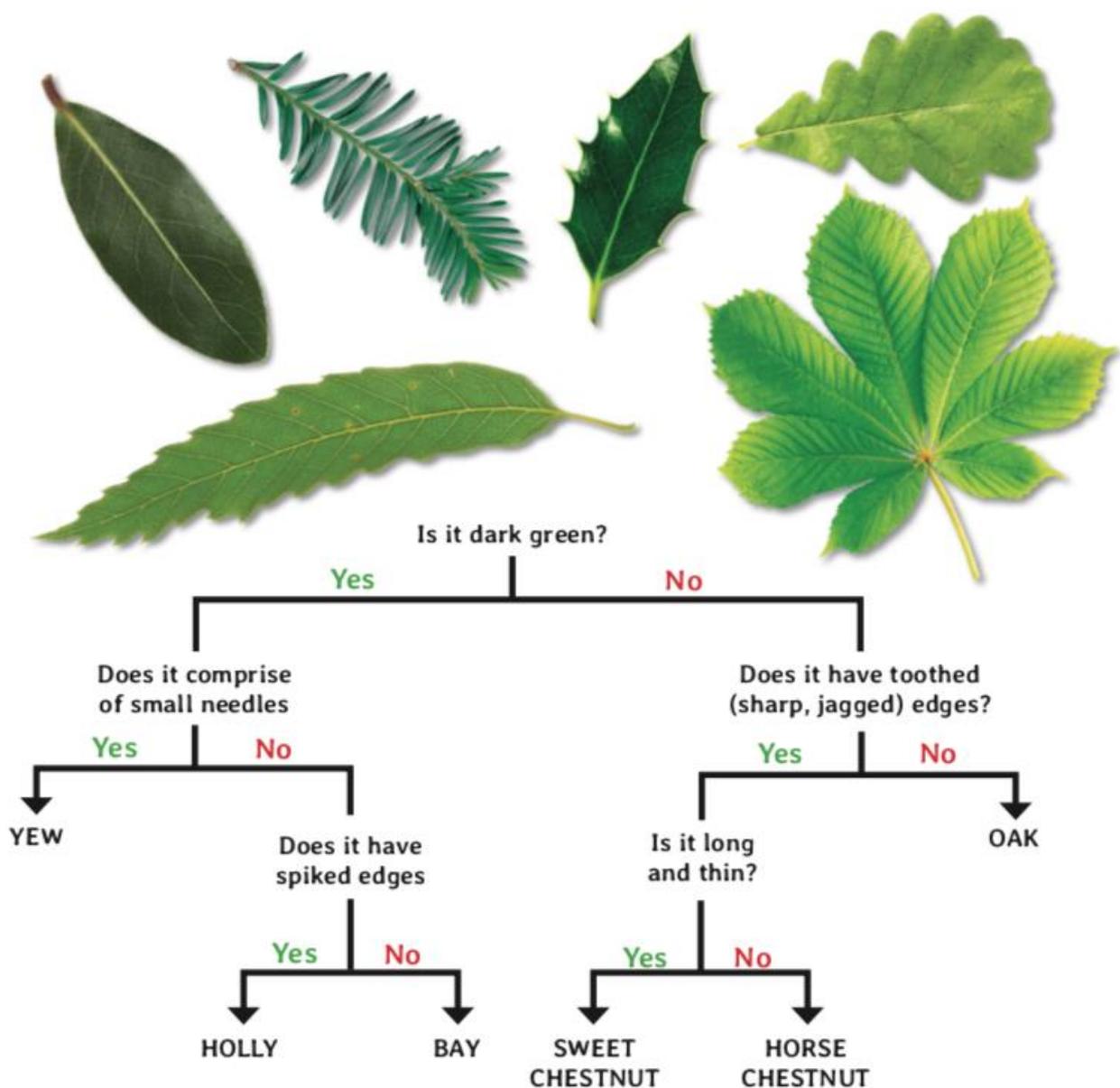
## LESSON 2 ACTIVITY 1: Preparing your own dichotomous key.

We know that dichotomous keys can help sort living things according to their characteristics and that they are made up of questions with a 'yes' or 'no' answer. Can you classify the leaves below?

### Your task:

#### Method:

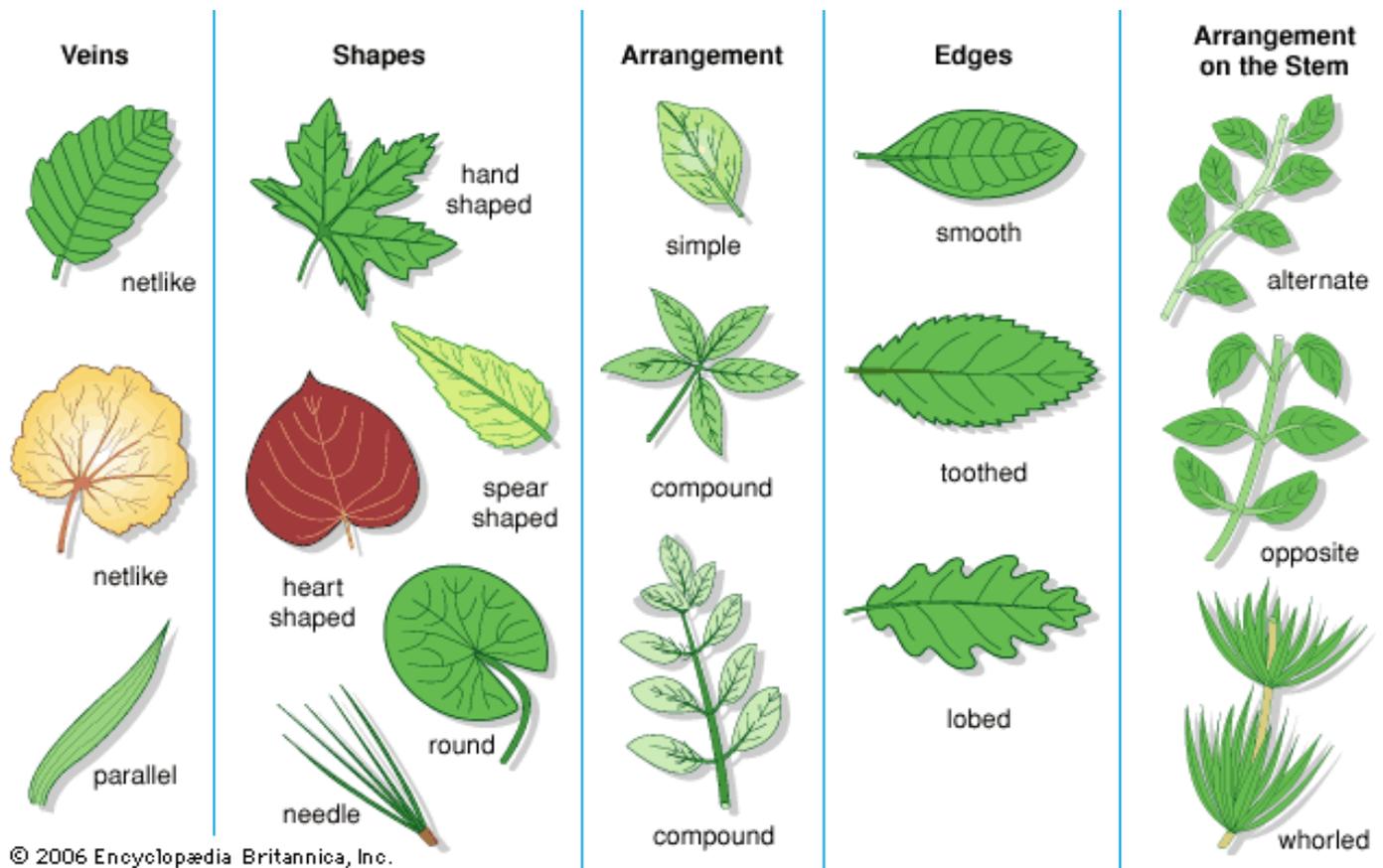
- 1 Choose a leaf to classify and start with the first question at the top of the classification key.
- 2 Follow the branches either "yes" or "no" and then ask yourself the next question.
- 3 When you have reached the last question, you will know what tree the leaf came from.



Once you have used the key to find out the name of the leaf, make sure you label each of the leaves above!

## LESSON 2 ACTIVITY 2: Scientific vocabulary; leaves.

Leaf type, shape, appearance, texture and colour are all key characteristics when identifying trees. Below is a table with some of the vocabulary that we can use to describe leaves.



### Arrangement:

The leaves of broadleaved trees fall into two basic types - **simple** and **compound**.

### Simple leaves

Leaves are whole and are not divided right to the central leaf vein, such as apple or birch. The edges of some simple leaves can be **indented** or **lobed**, such as sycamore, field maple and hawthorn, so take care not to mistake these for compound leaves. Lime leaves are a simple and heart-shaped leaf with a pointed tip.



### Compound leaves - pinnate

Compound leaves fall into one of two categories - **pinnate** and **palmate**.



Pinnate are feather-shaped where leaflets are attached in pairs along the central vein such as rowan, ash and elder.

### Compound leaves - palmate

These are palm-shaped, like the outstretched fingers of a hand. Horse chestnut has palmately compound leaves. Be careful not to mistake *Acer* species such as sycamore and field maple as having palmately compound leaves - they are actually simple with a lobed edge.

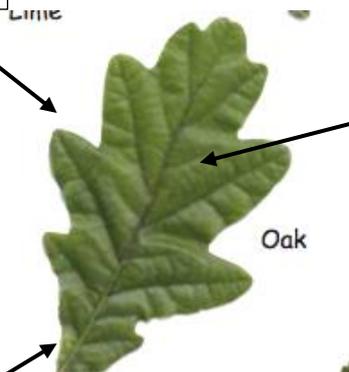


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### *Example of a labelled leaf to support your next activity:*

The edge of the leaf is lobed and wavy

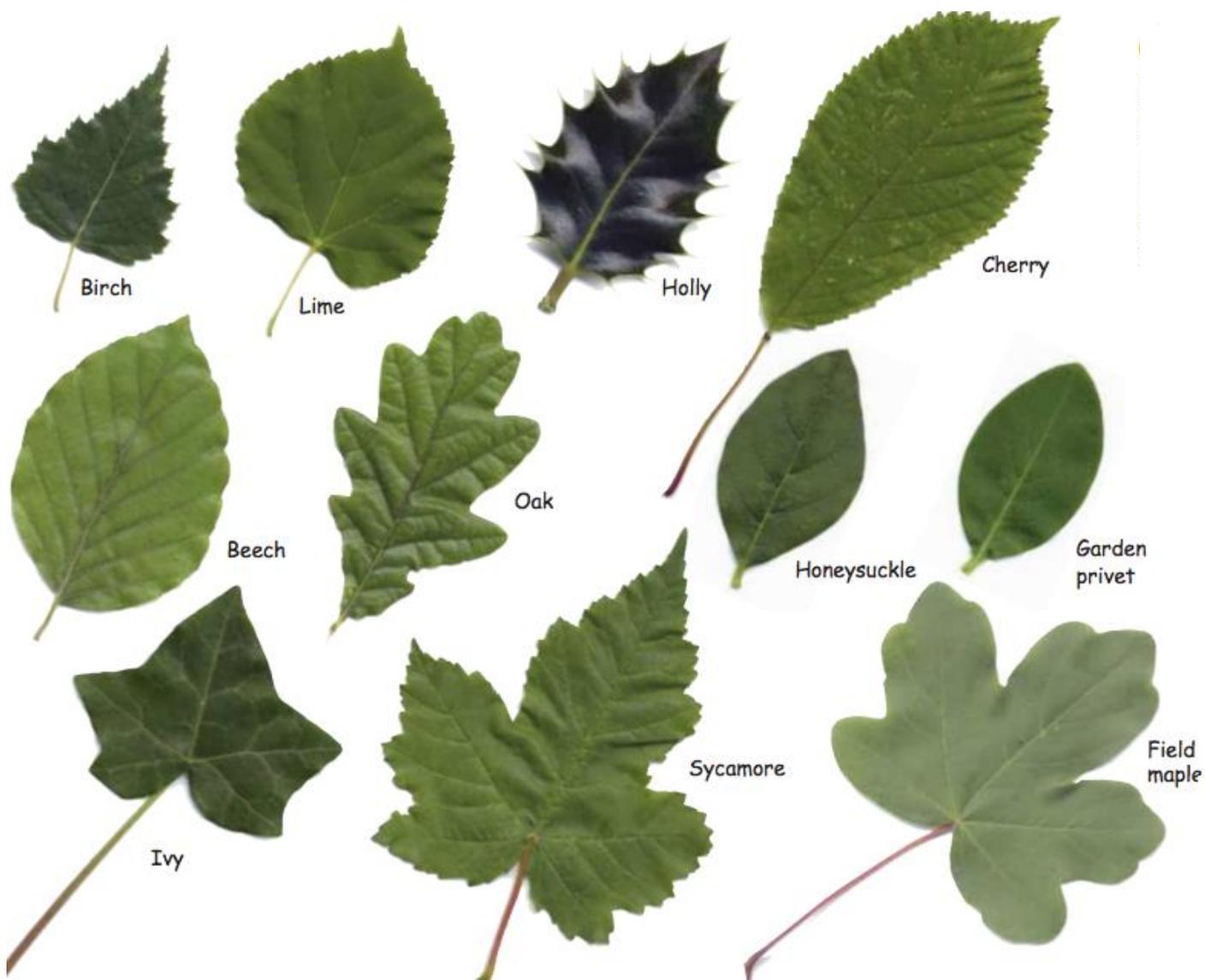
There is a central vein with smaller veins on the sides



This is a simple leaf; it is not divided.

## LESSON 2 ACTIVITY 2: Labelling leaves:

- 1). Choose four different leaves from the pictures below
- 2). Carefully draw each leaf (or use your observational drawings from last week) and label them with the different characteristics. (look at the examples above to support your labelling). What are the edges like? Are they lobed? Spiky? Toothed? Smooth? Is it a simple leaf? What do the veins look like? Ask yourself these questions to help you label them.



**Lesson 3 –  
LEARNING  
QUESTION**

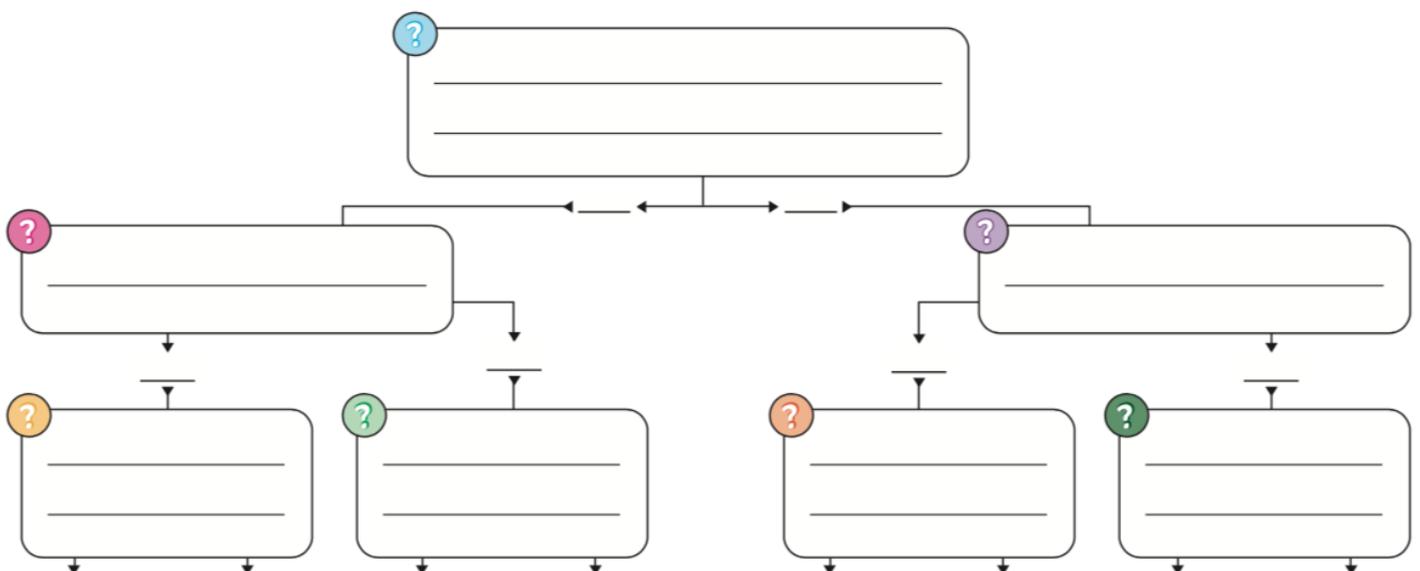


**LESSON 3 ACTIVITY 1: Characteristics of leaves to support you to make your dichotomous key.**

Character
Leaf is lobed
Leaf edge has teeth or prickles
Leaf edge is smooth or slightly wavy
Leaf has one main vein (running from stalk to leaf tip)
Leaf has more than one main vein (running from the stalk to the leaf edges)
Side veins mostly come off the main veins in pairs
Side veins all come off the main vein one at a time
Leaf stalk is longer than 1 cm
Leaf stalk has small bumps on it (these are glands)
Leaf stalk is red

Use these leaf characteristics to help you make your dichotomous key. The characteristics can help you divide your leaves.

**Challenge:** Use this flowchart (or draw your own) to write questions to help others to classify your leaves. Look at Lesson 1 Activity 2 to support you.



**Lesson 4 –  
LEARNING  
QUESTION**

## LESSON 4 ACTIVITY 1: Reading Comprehension: Linnaeus and classification

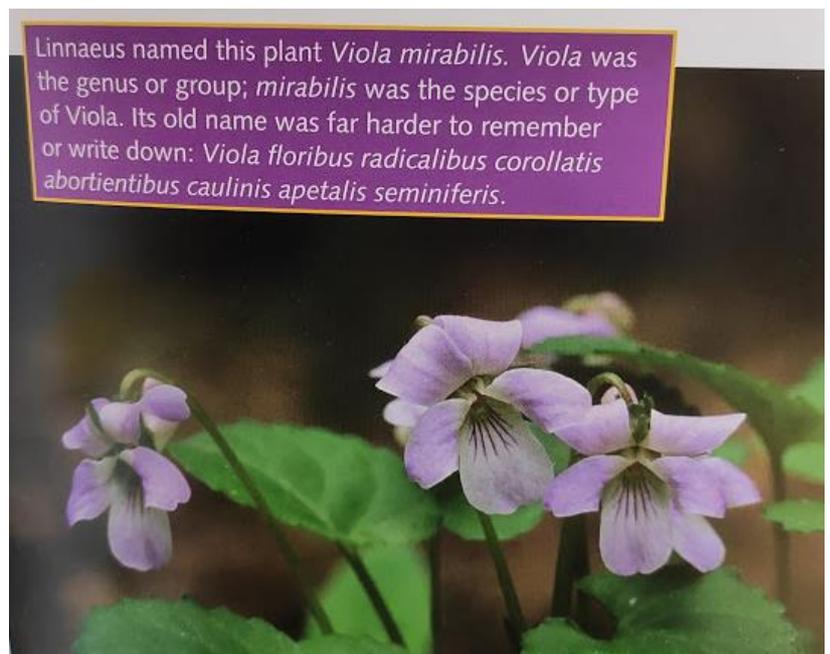
Read all about Linnaeus (and how he changed classification) then answer the questions below.

### Why Linnaeus's naming system was needed

Before Linnaeus's system of naming plants, there were no rules. Scientists named plants in any way they chose. One plant could have several names, and the names were often long, describing each bit of the plant.

Linnaeus used just two words to name a plant. The first name was the genus (or group) that the plant belonged to. The second name was the species (or type) within that group. This was called the 'binominal system'. Using this method, he worked out a two-word name for a wildflower that had an eight-word name before.

### How did Linnaeus's classification system work?

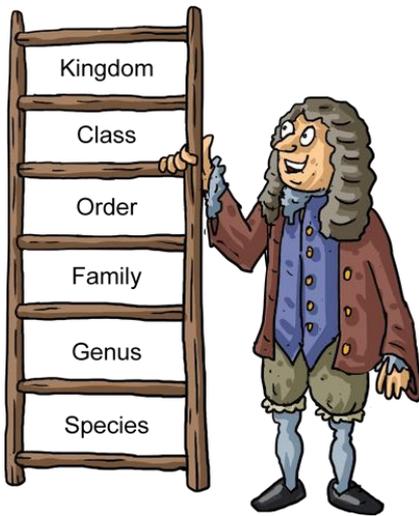


Linnaeus's two-word system of naming followed these steps:

- Studying a plant and comparing it with other plants;
- Putting the plant into a group of related plants, in order to work out the plant's genus – which becomes the first part of its name;
- Identifying a special feature of the plant – this becomes part's species, the second part of its name. This second name is like an adjective, describing the plant.

In *Viola mirabilis*, "mirabilis" means wonderful. Today more than 500 species of *Viola* have been identified and each has its own "binomial name", which means a name with two words.

Linnaeus developed his plant-naming system into a clear method for classifying the whole natural world. He split nature into three kingdoms: animals, plants and minerals. He split the kingdoms into five smaller ranks – first "class", then "order", then "family", then "genus" and finally, "species". The genus and species were used to create the binominal

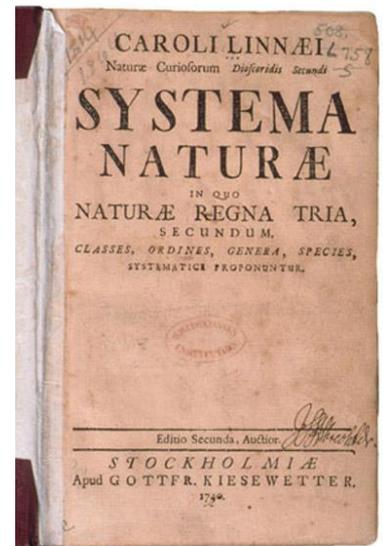


name. Some binominal names for animals are used in everyday language now, such as *Tyrannosaurus rex*. Linnaeus was also the first to label human beings *Homo sapiens*.

Gradually, lots of extra layers, such as suborders and subfamilies, have been added to animal classifications. Today, 22 ranks are used in the classification of the leopard. The whole natural world is now divided into five or six kingdoms, and not just the three that Linnaeus used.

### Systema Naturae

In his famous book, *Systema Naturae*, Linnaeus named over 7,700 species using the binominal system. He kept working on the book, adding more species of plants and animals and types of minerals, so it got longer and longer. His classification system became more complicated too.



He was the first to use the terms *Mammalia*, meaning mammals. As more discoveries were made about animals, he moved many into the “mammal” class. For example, in the first edition of *Systema Naturae*, he classified whales as fish. Then in 1758 in the tenth edition, he correctly reclassified them as mammals. He was also the first to reclassify bats. Scientists had always classified them as birds, but Linnaeus classified them as mammals too.

In the tenth edition, he also used his two-word naming system for plants and animals throughout – the naming system we still use today.

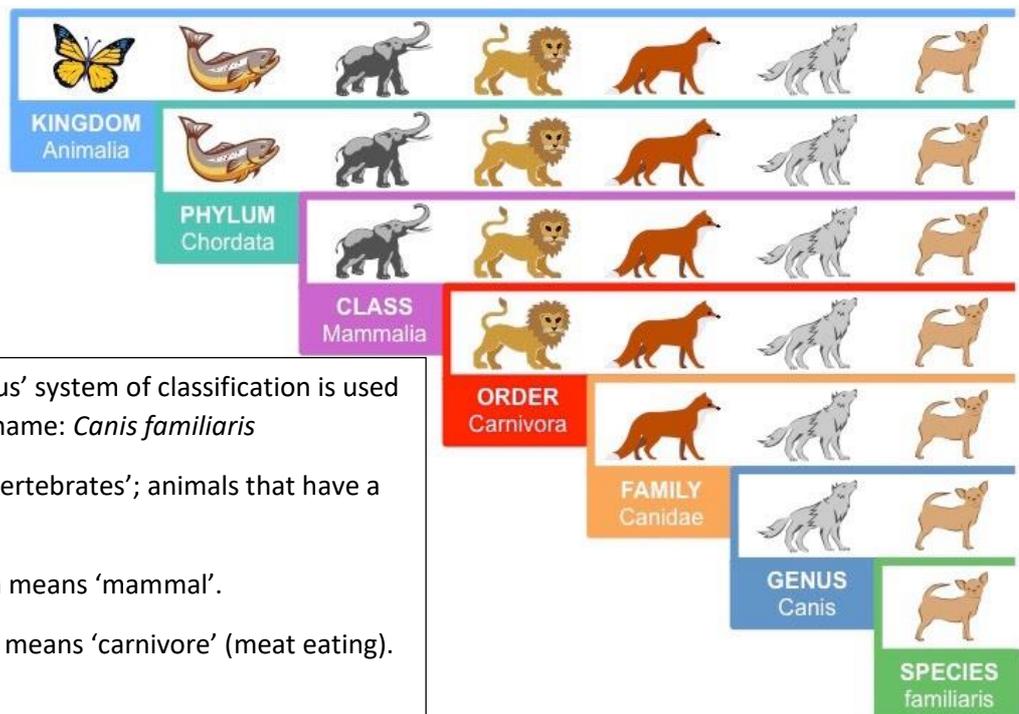


Diagram showing how Linnaeus’ system of classification is used to identify a dog’s binominal name: *Canis familiaris*

**Phylum** ‘chordata’ means ‘invertebrates’; animals that have a spine.

The **class** is ‘mammalia’ which means ‘mammal’.

The **order** is ‘carnivora’ which means ‘carnivore’ (meat eating).

## LESSON 4 ACTIVITY 1: Reading Comprehension questions:



### Getting started

Content domain: 2b - retrieve and record information/identify key details

2a - give/explain the meaning of words in context

1. What is the name of Linnaeus's most famous book?
2. Find and copy one word in the text that means 'wonderful'?
3. "*Linnaeus split nature into three kingdoms: animals, plants and minerals. He then split the kingdoms into five smaller ranks*".

What are the names of these 5 different ranks?

**Answers:**

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### Making Headway

Content domains: 2b - make inferences/explain and justify with evidence

2c - Summarise main ideas from more than one paragraph

1. What did Linnaeus do to identify different plants? Order the events below.

Putting the plant into a group of related plants, in order to work out the plants genus – which becomes the first part of its name

Identifying a special feature of the plant – this becomes part's species, the second part of its name. This second name is like an adjective, describing the plant.

Studying a plant and comparing it with other plants

2. What is the 'binominal system'?
3. Why might his system have helped other scientists?

**Answers:**



**Lesson 5 –  
LEARNING  
QUESTION**

## LESSON 5 ACTIVITY 1: Using Linnaeus' system of classification

Today you are going to experiment with using the Linnean system of classification.

We learnt yesterday that Linnaeus split nature into three kingdoms: animals, plants and minerals. He then split the kingdoms into **five smaller ranks** – first “**class**”, then “**order**”, then “**family**”, then “**genus**” and finally, “**species**”.

Look at the different mammals below. Each one has information about the smaller ranks they have been split into.

		
<b>Human</b> Class: Animalia Order: Primates Family: Hominidae Genus: Homo Species: Sapiens	<b>Neanderthal †</b> Class: Animalia Order: Primates Family: Hominidae Genus: Homo Species: Neanderthalensis	<b>Common Chimpanzee</b> Class: Animalia Order: Primates Family: Hominidae Genus: Pan Species: Troglodytes



**Barbary Macaque**  
Class: Animalia  
Order: Primates  
Family:  
Cercopithecidae  
Genus: Macaca  
Species: Sylvanus



**Domestic Cat**  
Class: Animalia  
Order: Carnivora  
Family: Felidae  
Genus: Felis  
Species: Catus

### Your task:

- 1) Cut out the different pictures of mammals (*on the page after the next page*)
- 2) Use the information about each mammal (above) to complete the taxonomy diagram on the next page.
- 3) Use the **genus** and **species** to create a binominal name for each mammal. An example has been done for you.

**LESSON 5 ACTIVITY 1: Taxonomy diagram showing Homo Sapiens and 4 other animals**

<b>Class</b> Mammalia					
<b>Order</b> Primates					
<b>Family</b> Hominidae					
<b>Genus</b> Homo					
<b>Species</b> Homo Sapiens					

**Human**  
Binomial name:



**Neanderthal**  
Binomial name:



**Common chimpanzee**  
Binomial name:



**Barbary macaque**  
Binomial name:



**Domestic cat**  
Binomial name:  
*Felis Catus*



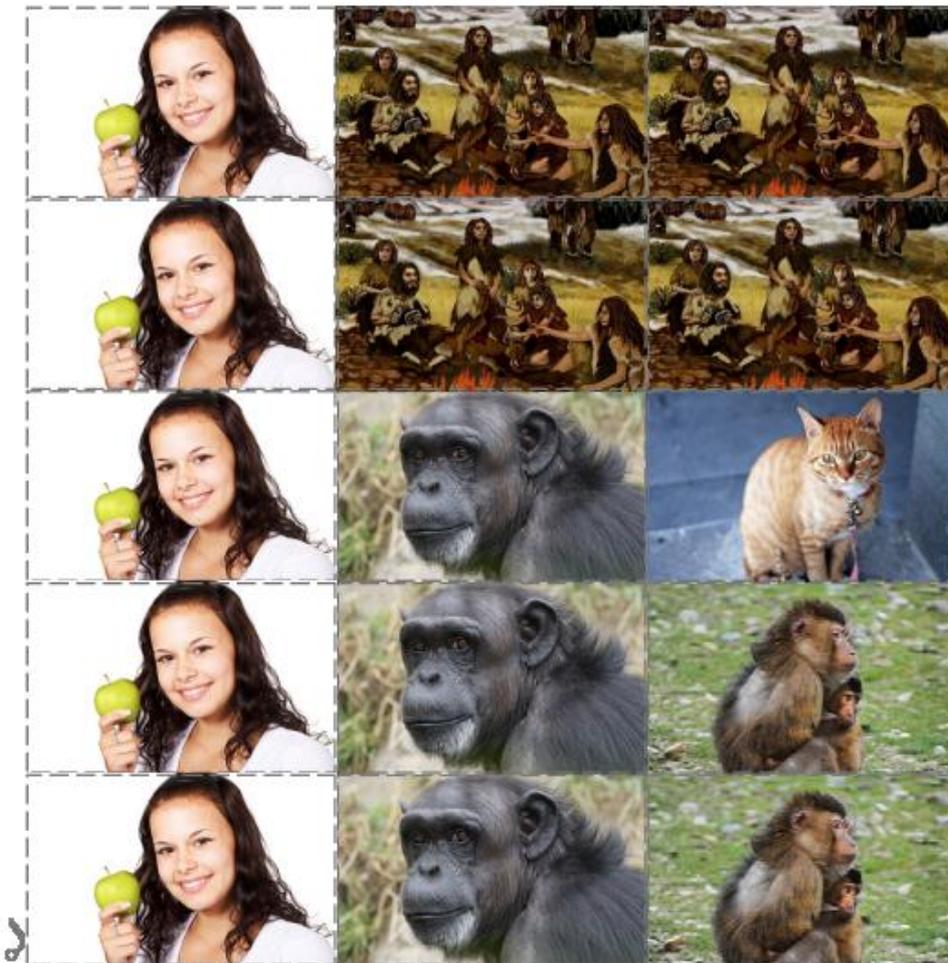
Which of these mammals is most closely related to Homo sapiens?  
\_\_\_\_\_

Which of these mammals is least closely related to Homo sapiens?  
\_\_\_\_\_

This binominal name has been done for you.

What are the other binominal names?

**LESSON 5 ACTIVITY 1: Cut out the pictures below of different mammals and use the information from the first page of this activity to put them into the correct groups.**



## LESSON 1 ACTIVITY 1: ANSWERS

	Statement	mammal	bird	reptile	amphibians	fish
1	It is cold-blooded.			✓	✓	✓
2	It is warm-blooded.	✓	✓			
3	It has scales and fins.					✓
4	It lays eggs.		✓	✓ *Usually	✓	✓
5	It gives birth to live young.	✓		✓ *Rarely		
6	It can live on land and under water.				✓	
7	It has webbed feet and wet skin.				✓	
8	It has feathers and wings.		✓			
9	It has scales and dry skin.			✓		
10	The mother provides babies with milk.	✓				
1 1	It has fur.	✓				