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Go Grow

Curriculum links:

KS1: SC2: 3(a,b), 5(a), MA2 Number 2a

Art and Design: 1(a,b), Music: 4d

KS2: SC1: 1b, 2(d,e,f,g,h,i,j) SC2: 1b, 3d, 4b, 5a

Art and Design: 1a, 2(a,b)

About The Hay Meadows

Upland hay meadows are internationally recognised as important. Though increasingly scarce, they occur in hilly areas across central and eastern Europe. In the UK there are thought to be about 1000ha of upland hay meadows left, of which 40% (400ha) are found in the North Pennines AONB.

The richest hay meadows support a great variety of flowering plants, with the very best fields containing more than 30 different species per square metre. In these diverse meadows, as spring progresses through summer, different plants come into bloom in a breathtaking display of colour.

Even within the same field plants that are characteristic of different latitudes mingle. Wood crane's-bill, for example, is typically a plant of northern England and Scotland, seldom occurring further south, whereas great burnet is rarely found further north than the England/Scotland border.

Hay meadows declined drastically during the 20th century, almost entirely due to changing agricultural practices. These include the use of inorganic fertilisers, ploughing and reseeding, a switch to silage making and heavy grazing pressure.

Aims

The Go Grow module includes resources suitable for both KS1 and KS2 children and aims to:

- Raise awareness of our natural environment
- Develop understanding of what flowers and plants need to grow
- Encourage investigative skills
- Develop skills in recording and understanding of data
- The importance of insects
- Use the natural environment as an interactive classroom

Flower Detectives

Key Stage 1

KS1: SC2: 3(a,b), 5(a), MA2 Number 2a

Field Study Activities

Part 1: Flower Detective Worksheet 1 and 2

During your visit use the Flower Identification Sheet to spot common flowers native to the Hay Meadow and record if a flower has been spotted and the number of flowers of that variety that can be found.

Part 2: Memory Card

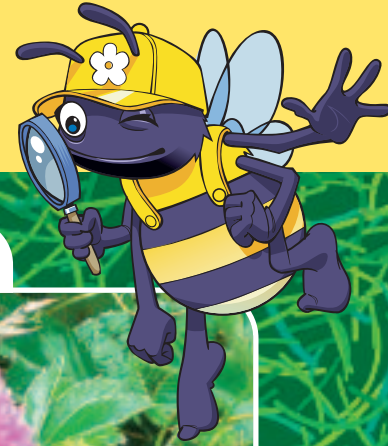
Collect samples of grasses and flowers that are found during the visit and attach them to the worksheet. This will serve as a good reminder of the day and help to stimulate discussion during any further classroom activities.





Flower Detective Worksheet 1

See if you can spot Mother Nature's favourite flowers in her Hay Meadow.



Globe Flower



Flowering Time: May - July
Size: 10 - 60cm

Spotted Number

Red Clover



Flowering Time: May - Oct
Size: 10 - 30cm

Spotted Number

Meadow Buttercup



Flowering Time: May - July
Size: 30 - 100cm

Spotted Number

Pignut



Flowering Time: May - July
Size: 20 - 30cm

Spotted Number

Yellow Rattle



Flowering Time: May - July
Size: 15 - 40cm

Spotted Number

Great Burnet



Flowering Time: June - Sept
Size: 30 - 100cm

Spotted Number



Flower Detective Worksheet 2

See if you can spot Mother Nature's favourite flowers in her Hay Meadow.



Common Sorrel



Flowering Time: May - June Spotted Number
Size: 30 - 100cm

Ribwort Plantain



Flowering Time: April - Oct Spotted Number
Size: 10 - 40cm

Common Knapweed



Flowering Time: July - Sept Spotted Number
Size: 20 - 80cm

Selfheal



Flowering Time: June - Nov Spotted Number
Size: 10 - 25cm

Wood Cranes-bill



Flowering Time: June - Aug Spotted Number
Size: 20 - 60cm

Devil's-bit Scabious



Flowering Time: June - Oct Spotted Number
Size: 20 - 80cm



Memory Card

Collect samples of grasses and flowers that are found during your visit and stick them to this worksheet.



Stick your samples here.
You could use glue
or sticky tape.



Flower Detectives

Key Stage 2

Field Study Activities

Part 1: Flower Identification Guide 1 and 2

To be used to identify flowers found in the quadrat.

Part 2: How to make and use a quadrat

To be used with worksheets from Part 1 and 3
Instructions on how to make (or use a standard hula-hoop) as a quadrat and how to use it to record the number of flowers in a given area.

You will need:

- A quadrat (see instructions on worksheet) or P.E. Hoop for each group
- A grassy area to survey (preferably a Hay Meadow)
- Copies of the Flower Detectives Guide and Sample Sheets
- Pens

Method:

- Split the class into groups and allow each group to take their quadrat (or hula-hoop) into a local Hay Meadow or on the school field.
- Ask them to throw the quadrat safely and randomly in two different spots and record what species they can find within the quadrat on the sample sheets (Part 3).
- Children can use the Flower Identification Guide (Part 1) to help them or create a new guide with the species they find.

Part 3: Quadrat Sample Worksheet

To be used to record the number of each flower found in the quadrat. Groups should fill in at least two worksheets.

Part 4: Memory card

Collect samples of grasses and flowers that are found during the visit and attaché them to the worksheet. This will serve as a good reminder of the day and help to stimulate discussion during any further classroom activities.

Classroom Activity

Part 5: Graph Results

Use the two samples to record the findings in a bar graph and compare the two sets of results.



Flower Identification Guide 1

Use this guide to help you to spot Mother Nature's favourite flowers in her Hay Meadow.



Globe Flower



Flowering Time: May - July
Size: 10 - 60cm

Red Clover



Flowering Time: May - Oct
Size: 10 - 30cm

Meadow Buttercup



Flowering Time: May - July
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Pignut



Flowering Time: May - July
Size: 20 - 30cm

Yellow Rattle



Flowering Time: May - July
Size: 15 - 40cm

Great Burnet



Flowering Time: June - Sept
Size: 30 - 100cm



Flower Identification Guide 2

Use this guide to help you to spot Mother Nature's favourite flowers in her Hay Meadow.



Common Sorrel



Flowering Time: May - June
Size: 30 - 100cm

Ribwort Plantain



Flowering Time: April - Oct
Size: 10 - 40cm

Common Knapweed



Flowering Time: July - Sept
Size: 20 - 80cm

Selfheal



Flowering Time: June - Nov
Size: 10 - 25cm

Wood Cranes-bill



Flowering Time: June - Aug
Size: 20 - 60cm

Devil's-bit Scabious



Flowering Time: June - Oct
Size: 20 - 80cm



How to make and use a Quadrat

Follow the instructions to make your own quadrat or use a standard PE hula-hoop.



You will need:

- 4 garden canes (all the same length at least 50 cm long)
- Sticky tape
- Tape measure or long ruler
- Pencil



Step 1:

Method:

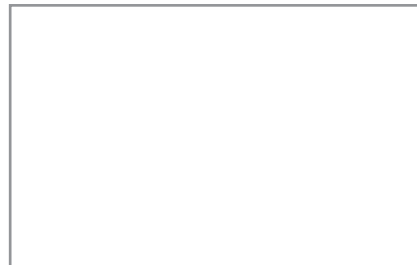
Step 1: Lay your 4 canes out in a square on a flat surface

Step 2: Measure the distance from one corner diagonally to the opposite corner and make a note of the length.

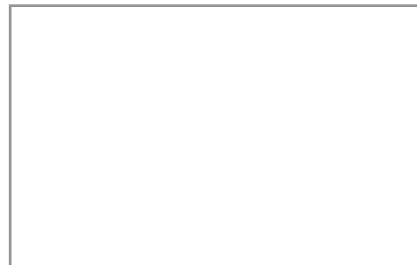
Step 3: Measure the other diagonal.

Step 4: Adjust your square until both diagonals are the same.

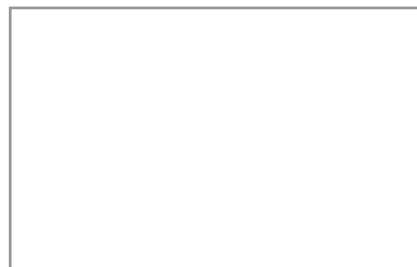
Step 5: Carefully tape the corners together whilst keeping the canes in a square.



Step 2:



Step 3:



Step 4:



Step 5:

How to use:

Take your quadrat and throw it safely and randomly in two different spots in the Hay Meadow.

Use your **Sample Sheets** to record what species you can find within your quadrat.

You can use the **Flower Identification Guide** to help you identify the different flowers or create a new guide with the species you find.



Quadrat Sample Worksheet

Use this worksheet to record the different kinds of flowers you can see in your quadrat and how many of each kind you can see.



Sample Number:

Flower Name

Number

<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
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Memory Card

Collect samples of grasses and flowers that are found during your visit and stick them to this worksheet.



Stick your samples here.
You could use glue
or sticky tape.

Plant Parts

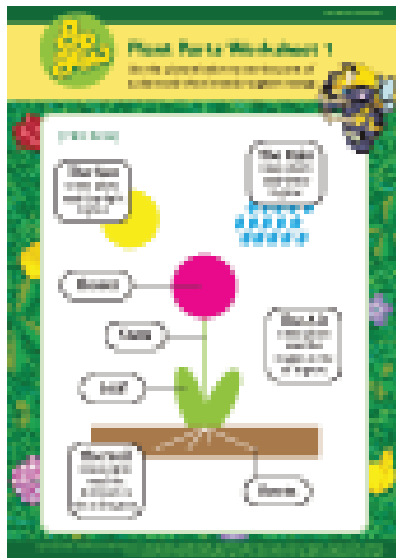
Key Stage 1

KS1: SC2: 3(a,b), 5(a), MA2 Number 2a

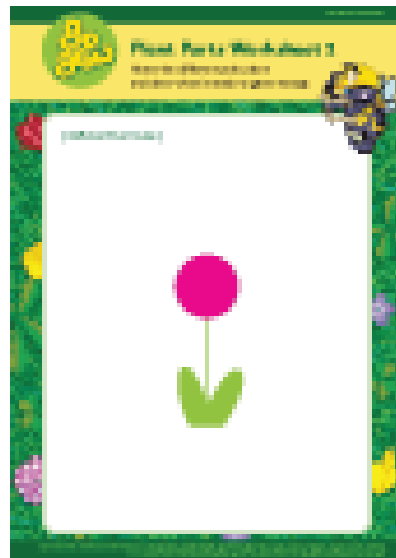
Part 1: Reference the diagram of a [ENTER NAME OF PLANT], start a conversation about the different parts of a plant, what they do and why each part is important.

Part 2: Using the diagram of [ENTER NAME OF PLANT], fill in the blanks with the missing plant parts.

Part 3: Classroom discussion. Use the Memory card from your visit to the Hay Meadow to identify the different parts of the plants on their cards.



Worksheet 1



Worksheet 2

go grow

Plant Parts Worksheet 1

Use the picture below to see the parts of a plant and what it needs to grow strong.



The Sun

Green plants need **Day-light** to grow.



The Rain

Green plants need **Water** to grow.



Flower



Stem



Leaf

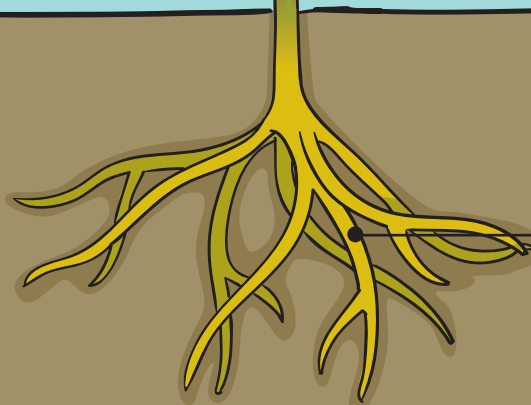


The Air

Green plants need the **Oxygen** in the air to grow.

The Soil

Green plants need the **Nutrients** in the soil to grow.

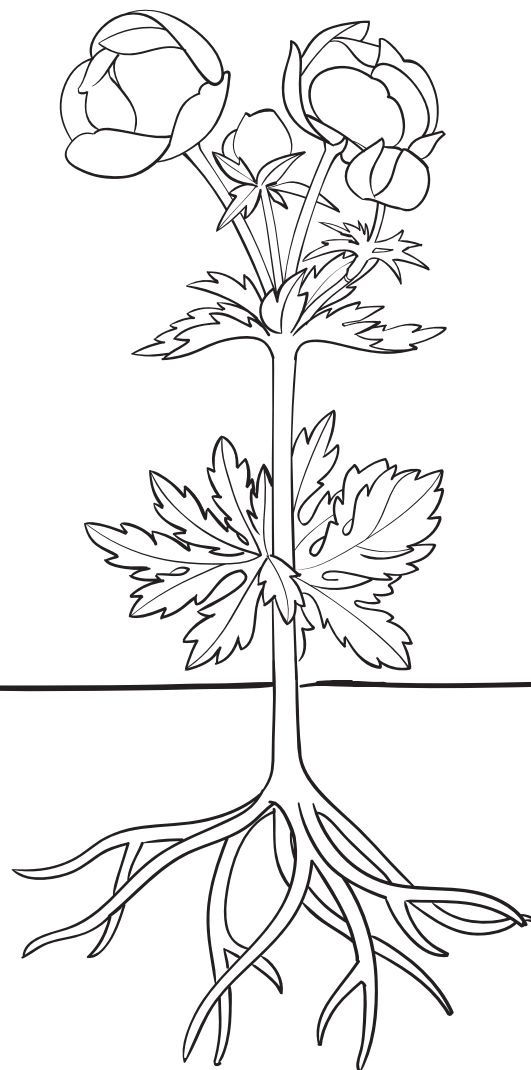


Roots



Plant Parts Worksheet 2

Name the different plant parts and draw what is missing that will help a plant to grow strong.



Plant Parts

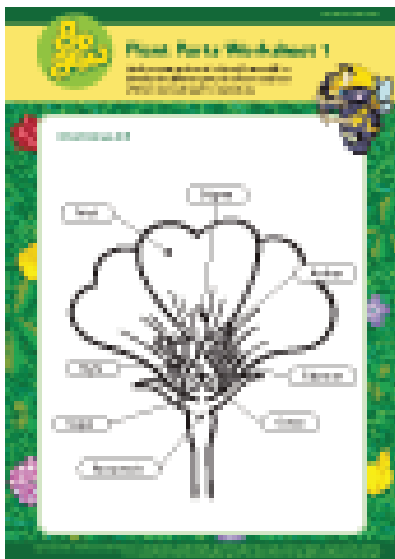
Key Stage 2

KS1: SC2: 3(a,b), 5(a), MA2 Number 2a

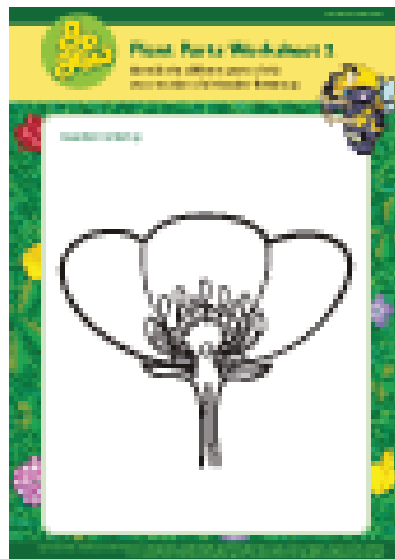
Part 1: Reference the cross-section diagram of a [ENTER NAME OF PLANT], start a conversation about the different parts of a plant, what they do and why each part is important. In addition, the idea of using cross-section diagrams to show complex structures in more detail.

Part 2: Using the diagram of [ENTER NAME OF PLANT], fill in the blanks with the missing plant parts.

Part 3: Using the Memory card from your visit to the Hay Meadow draw a cross-section diagram of one of the flowers collected and identify the parts.



Worksheet 1



Worksheet 2



Worksheet 3

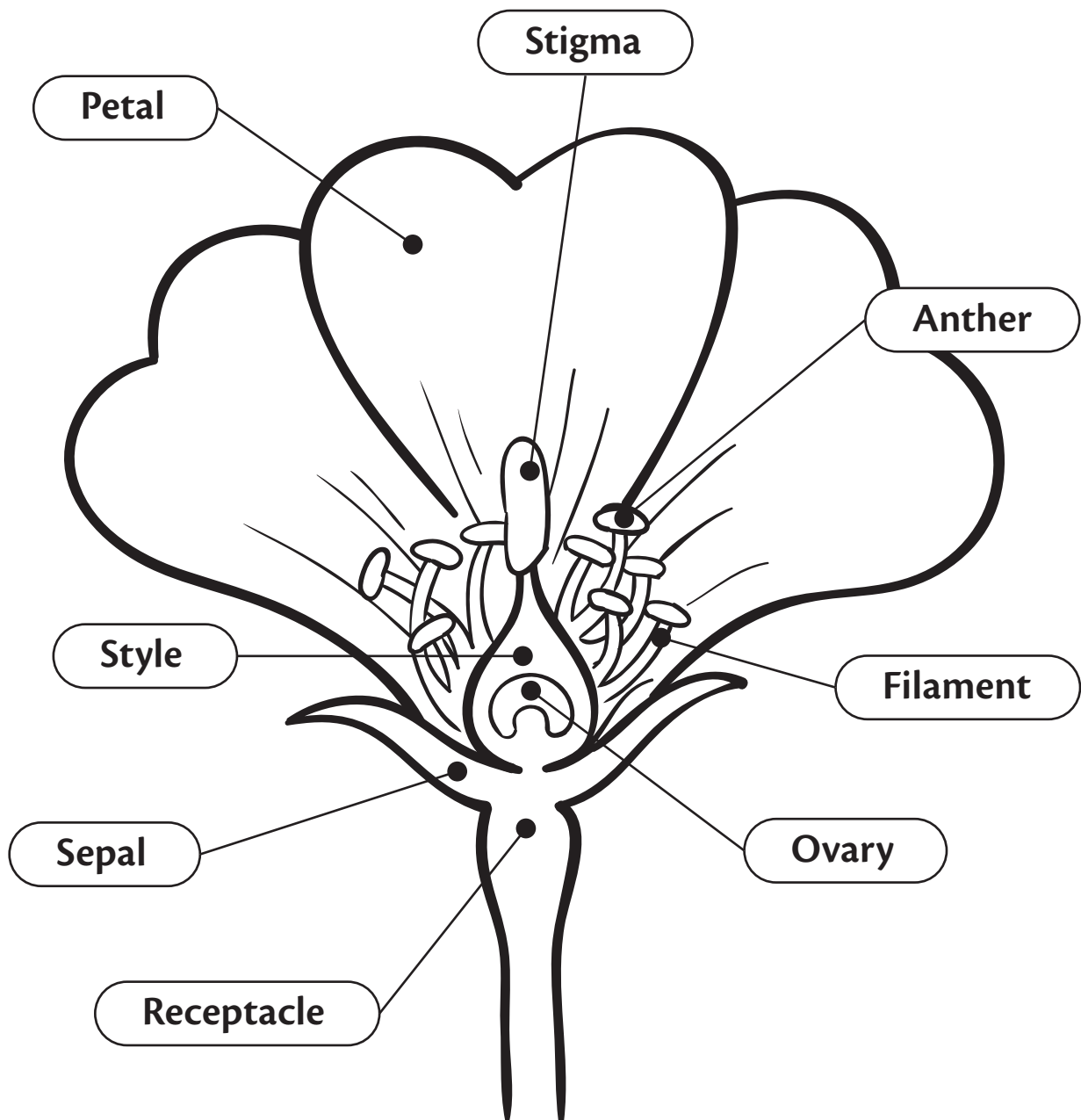


Plant Parts Worksheet 1

Use the cross-section of a Wood Cranes-bill to identify the different parts of a flower and how a flower uses each part to reproduce.



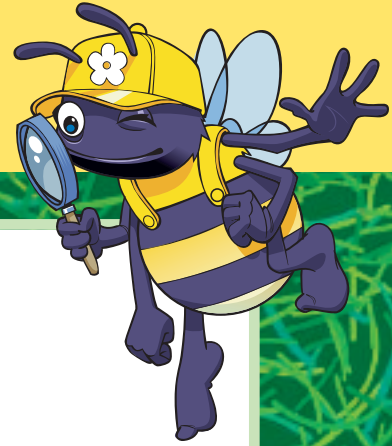
Wood Cranes-bill



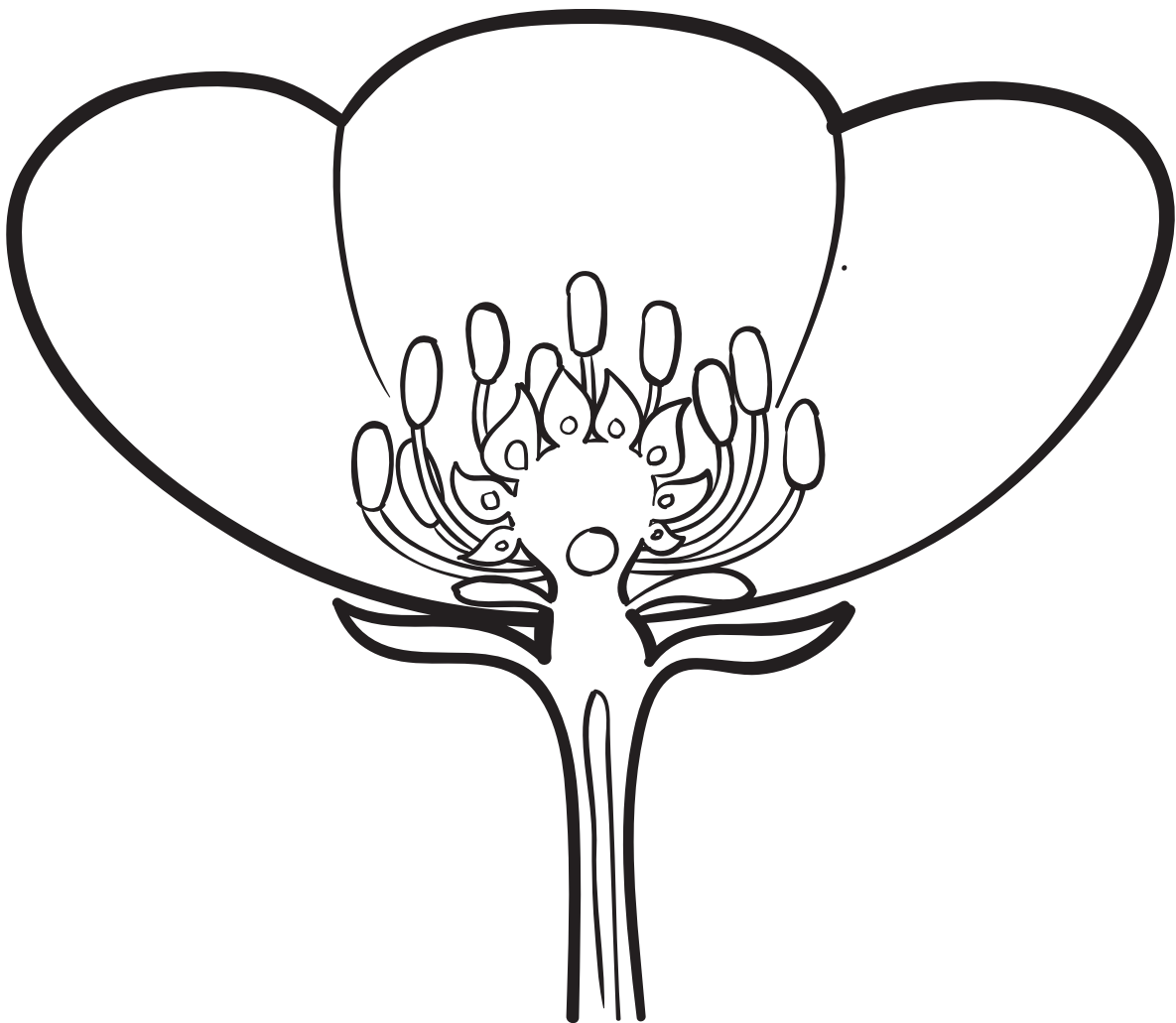
The logo features the words "Go Grow" in a stylized, bubbly font. "Go" is positioned above "Grow", and both are rendered in a bright yellow color with a thick green outline. The text is set against a circular green background.

Plant Parts Worksheet 2

Identify the different parts of this cross-section of a Meadow Buttercup.



Meadow Buttercup



The logo consists of the words "Go" and "grow" stacked vertically in a bold, rounded, yellow font with a green outline. The text is set against a circular green background.

Plant Parts Worksheet 3

Use your Memory card from your visit to the Hay Meadow to draw a cross-section diagram of one of the flowers you collected and identify the parts.



Germination Race

Key Stage 2

KS1: SC2: 3(a,b), 5(a), MA2 Number 2a

Undertake a study into how long it takes for different species of Hay Meadow plant seeds to germinate and grow.

You will need:

- Small pots
(one for each different type of seed you collect)
- Cotton wool
- Water
- Cling Film
- Seeds (from your wild flower meadow)
- Magnifying glass
- Recording sheet



Method:

- Collect seeds from your wildflower meadow, flowers or autumn berries on wayside and hedges.
- Make sure you keep each type of seed separate and label them clearly.
- Get a small pot for each type of seed
- In each pot place some cotton wool soaked in equal amounts of water.
- Put each seed type into separate pots
- Cover them with cling film and place somewhere in the classroom that receives plenty of natural light
- Monitor daily and use the worksheet to record when each seed type germinates



Additional area of study:

- If you only have a small selection of seeds or you would like to look at how different conditions affect how a seed germinates, try using the same seed and enforce different growing conditions:
- Use less or more water on some seeds, try using different soil types, or place some in a dark corner. Compare the results and draw conclusions.




 The logo features the words "Go Grow" in a playful, rounded, yellow font with a green outline, set against a green circular background.

Germination Race Worksheet

Use this worksheet to record the length of time it takes for each seed to germinate.



If you only have a small selection of seeds or you would like to look at how different conditions affect how a seed germinates, try using the same seed and enforce different growing conditions:

Use less or more water on some seeds, try using different soil types, or place some in a dark corner. Compare the results and draw conclusions.

Seed Name	Conditions (e.g extra water)	Date Planted	Germination Date	How long did it take

School Wildflower Set-a-side

Key Stage 1 and 2

KS1: SC2: 3(a,b), 5(a), MA2 Number 2a

What is a set-a-side?

[NEED BACKGROUND INFO FOR THIS]

Method:

- With your class, choose an appropriate site that will not be disturbed, you need to alert the grounds staff that this area will be a Wildflower Set-a-side.
- Ask your class to create and undertake questionnaires so that everybody in the school has a say about the location of your Wildflower Set-a-side.
- Children should be involved in:
 - Research flower types
 - Undertake soil testing (if possible)
 - Prepare the soil
 - Planting.
- [NEED MORE INFO ON HOW TO CREATE THE SET-A-SIDE]
- Once the flowers have grown and seeded themselves leave the area alone to maximise wildlife entering the space.

Additional ideas:

- Encourage and monitor insects and animals that use the space
- Monitor the changes of colour throughout the seasons
- Use the Flower Detectives Guide to identify and monitor the plants in your wildflower set-a-side
- Compare the flowers you see in your wildflower set-a-side to those found in a Hay Meadow.



Do You Remember?

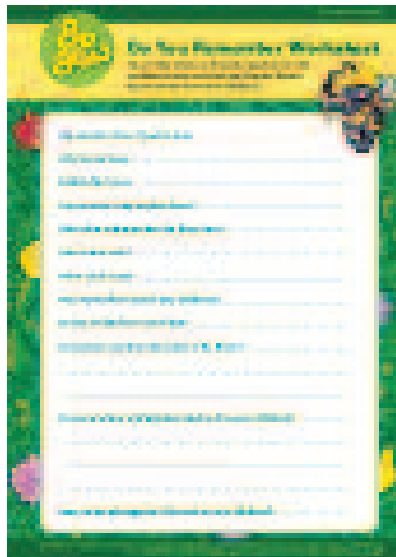
Key Stage 2

KS1: SC2: 3(a,b), 5(a), MA2 Number 2a

This worksheet begins a line of inquiry and opens dialogue between child and relative about the subject matter. The aim of this piece of work is to bring outside influences and experiences of the Hay Meadows into the classroom to be shared and used as a creative stimulus to be developed.

This worksheet can be used as the starting point for a number of different pieces of work:

- Short stories
- Poems
- Displays

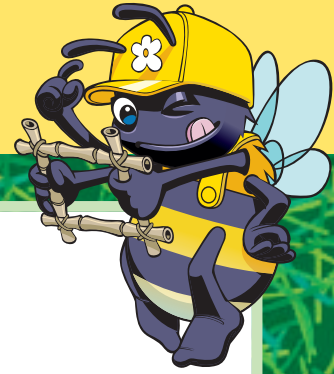


Worksheet 1



Do You Remember Worksheet

Ask an older relative or friend the questions on this worksheet and record what Hay Meadow flowers they remember from their childhood.



Hay Meadow Flower Questionnaire

What is your name:

Relationship to you:

Can you name a Hay Meadow flower?

What other nicknames does that flower have?

What colour was it?

Where was it found?

How was the flower used in your childhood?

Do you see that flower now-a-days?

Do you know any other information on the flower?

.....

.....

Do you remember anything about Haytime from your childhood?

.....

.....

.....

Have you any photographs of flowers from your childhood?

The Humble Bumblebee

Key Stage 1 and 2

KS1: SC2: 3(a,b), 5(a), MA2 Number 2a
 [INFO ABOUT THE BUMBLEBEE]

Part 1: Know the Parts of a Bumblebee

Reference the diagram of a Bilberry Bumblebee, start a conversation about the different parts of a bumblebee, what they do and why each part is important.

Part 2: Identify the Parts of a Bumblebee.

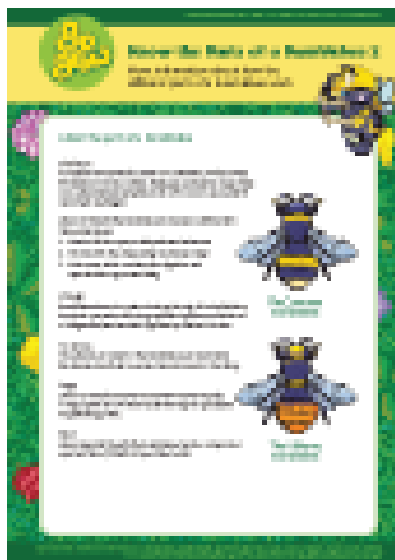
Using the diagram of Common Bumblebee, fill in the blanks with the missing bumble bee parts.

Part 3: Bumblebee Finger Puppet.

Use the Bumblebee template to make a finger puppet that can be used as part of the flower dance.



Worksheet 1



Worksheet 2



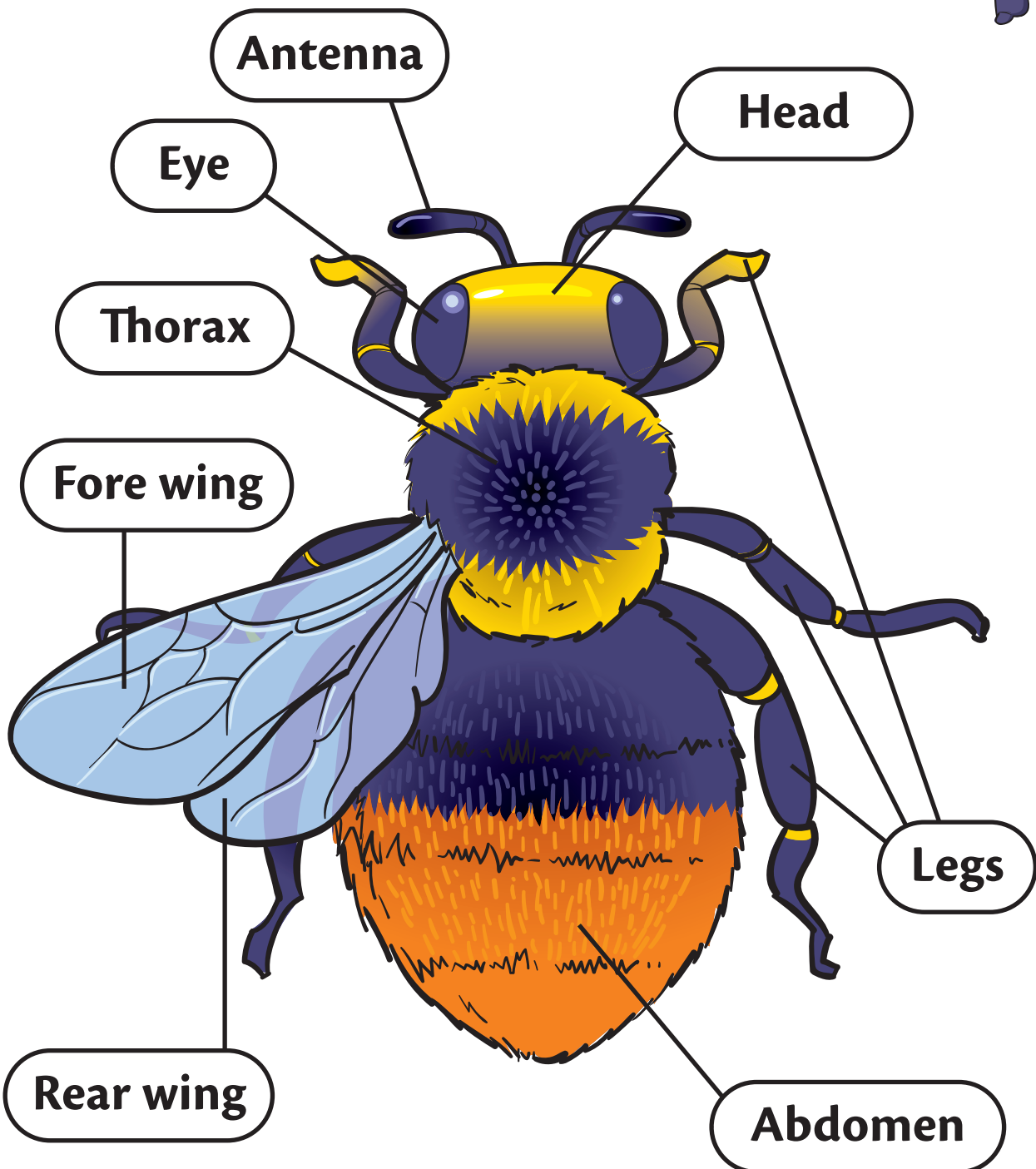
Worksheet 3

Know the Parts of a Bumblebee 1

This diagram shows what the different parts of a bumblebee are called.



The Bilberry Bumblebee





Know the Parts of a Bumblebee 2

More information about how the different parts of a bumblebee work.



About the parts of a Bumblebee

Skeleton

A bumblebee has what is called an **exoskeleton**, which means it's skeleton is on the outside. Having an exoskeleton means that once a bumblebee has hatched out of its cocoon as an adult it cannot get any bigger.

Like most insects the bumblebee body can be divided into three main areas:

1. **Head** with the eyes, mouthparts and antennae
2. **Thorax** with the wings, wing muscles and legs
3. **Abdomen** which contains the digestive and reproductive organs and sting

Wings

Bumblebees have two pairs of wings, though it looks like they have just one pair as the wings operate together, unlike those of dragonflies, and are held together by a series of hooks.

Antenna

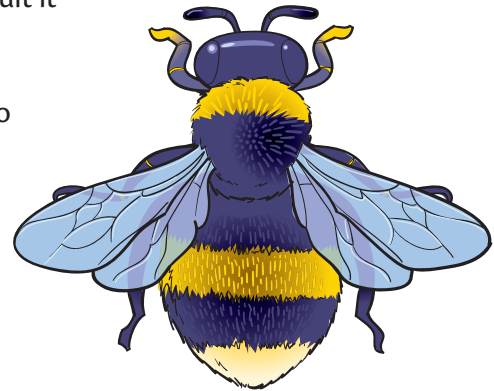
The antenna or feelers of the bumblebee are used rather like humans use their noses, and are also used for touching.

Legs

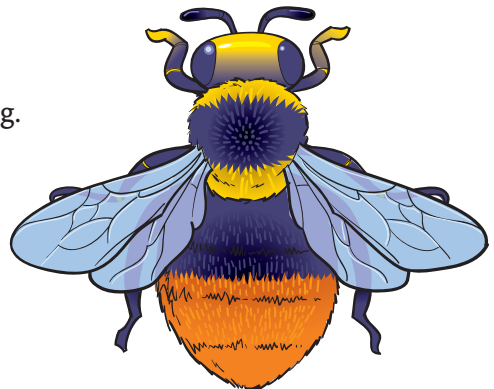
Like most adult insects the bumblebee has three pairs of legs. Queen and worker bumblebee legs are specialised for gathering pollen.

Eyes

Like many adult insects the bumblebee has two compound eyes and three "primitive" eyes called ocelli.



The Common Bumblebee



The Bilberry Bumblebee

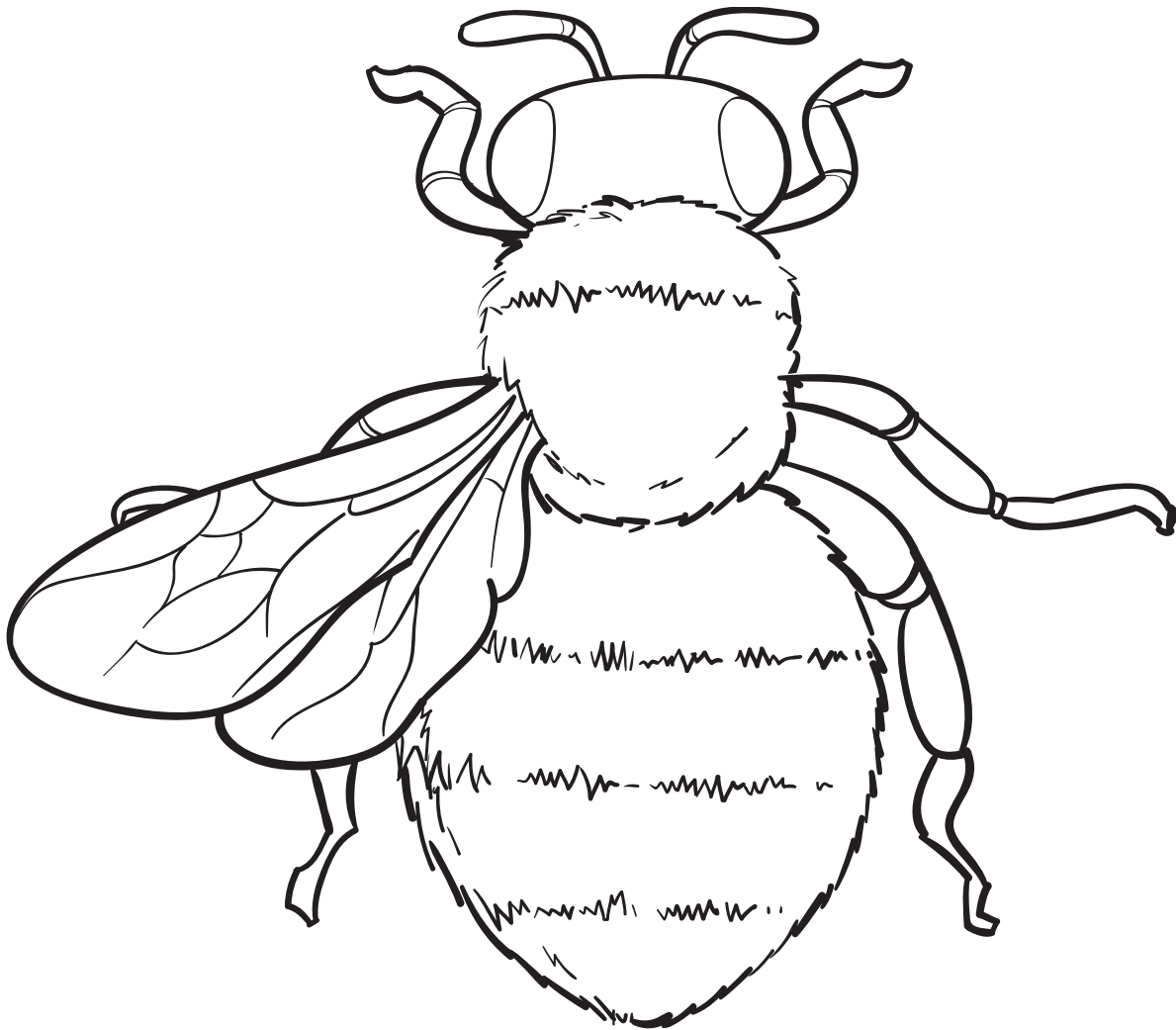


Identify the Parts of a Bumblebee

Using your knowledge of the bumblebee, identify the parts of this bee.



The Common Bumblebee





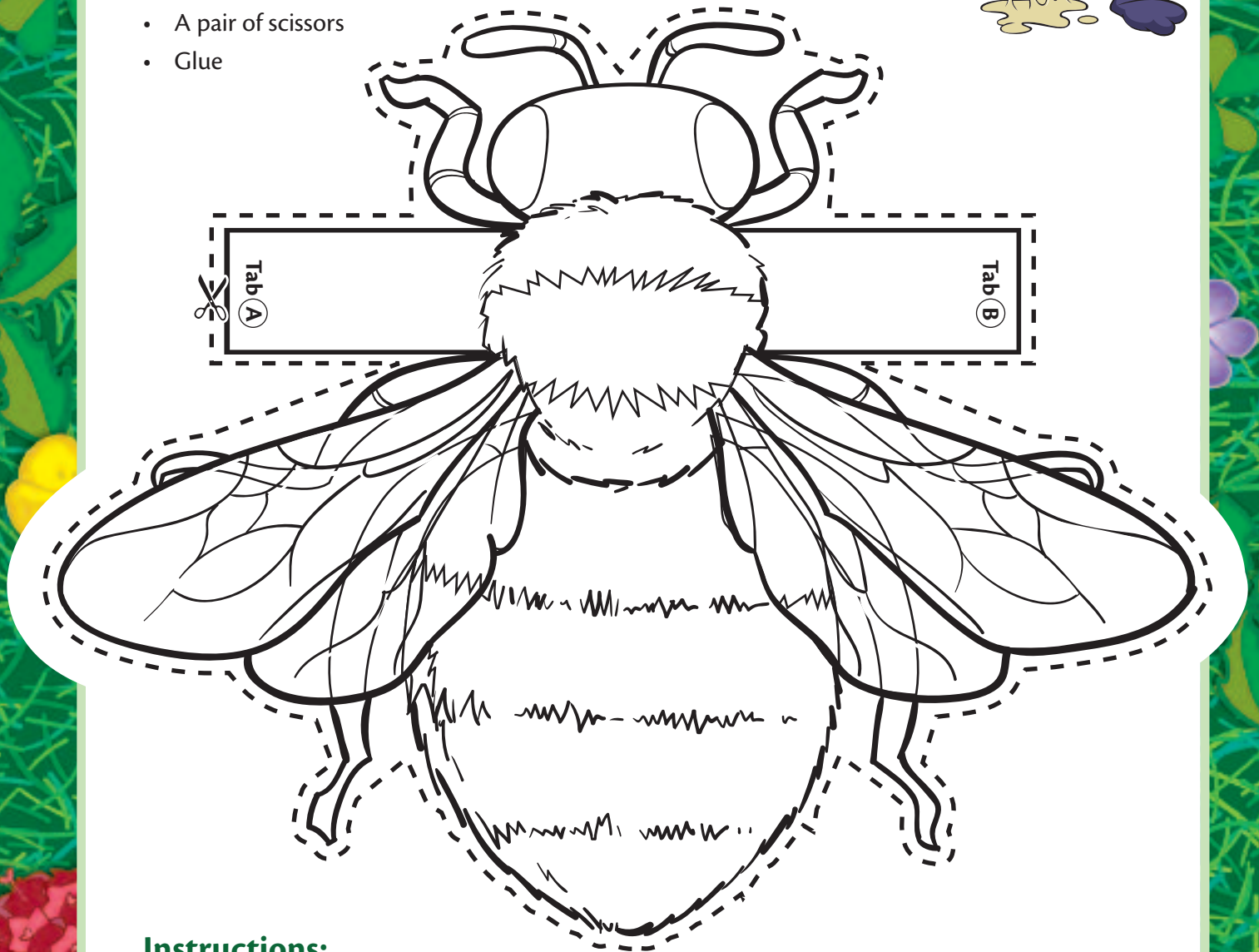
Bumblebee Finger Puppet

Follow the simple instructions to make your own bumblebee finger puppet.



You will need:

- Colouring pens or crayons
- A pair of scissors
- Glue



Instructions:

- 1 First, colour in your Bumble bee on the worksheet, you can choose any colours you like!
- 2 Carefully cut the Bumble bee out using the scissors, make sure there's an adult with you for this.
- 3 Put a bit of the glue on Tab B and bend both tabs underneath the bee. Now stick Tab A onto Tab B creating a loop, making
- 4 Finally, try the Bumble bee finger puppet for size. If you like, you can also stick some extra decoration onto your Bumble bee now.
- 5 Your Bumble bee finger puppet is ready to use, have fun!



Key Stage 1 and 2

KS1: SC2: 3(a,b), 5(a), MA2 Number 2a

This could be incorporated into a PE lesson

Aims:

- To create movement that reflects the names and characteristics of the flowers and grasses found in the Hay Meadow.
- To enable young people to recall the names of flowers through word association.

Music suggestions:

- Fantasia on a Theme by Thomas Tallis
- Adagio for Strings by Samuel Barber
- Pastoral Symphony by Ludwig van Beethoven
- Flight of the Bumblebee by Nikolai Rimsky-Korsakov

The Masks:

Use the Flower Masks Templates to create a colourful field of Human Hay Meadow Flowers. Children can colour and decorate the templates, or make their own versions of hay meadow flowers to wear as part of the Flower Dance.

The Dance:

- Divide class into six groups.
- Give each group a flower and picture
- Each group creates an action to express the name of their flower (allow up to five minutes for this activity)
- Each group must be able to repeat their action three times in a sequence.
- Split class into new groups with one species of flower in each group.
- Share actions within each group
- Pupils to then create new sequence based on these movements
- Sequences should be rehearsed and then shared with the whole class.
- The learnt sequences can be performed in small groups or put together to create a whole class dance.

Additional Ideas:

The Bumble Bee finger puppets can be incorporated into the performance.



Flower Mask

Great Burnet

Instructions:

1. Colour your mask in on the worksheet, it can be any colour you like!
2. Using scissors, carefully cut out the mask following the dotted line (don't forget to cut out the eye holes!)
3. Use a pencil to make a hole on either side of the head where the guides are.
4. Take a piece of elastic and tie a knot in one end. Thread this through one of the holes so that the knot is on the front.
5. Thread the other end through the other hole. Make sure the elastic is long enough to go around your head and tie a knot in the loose end.



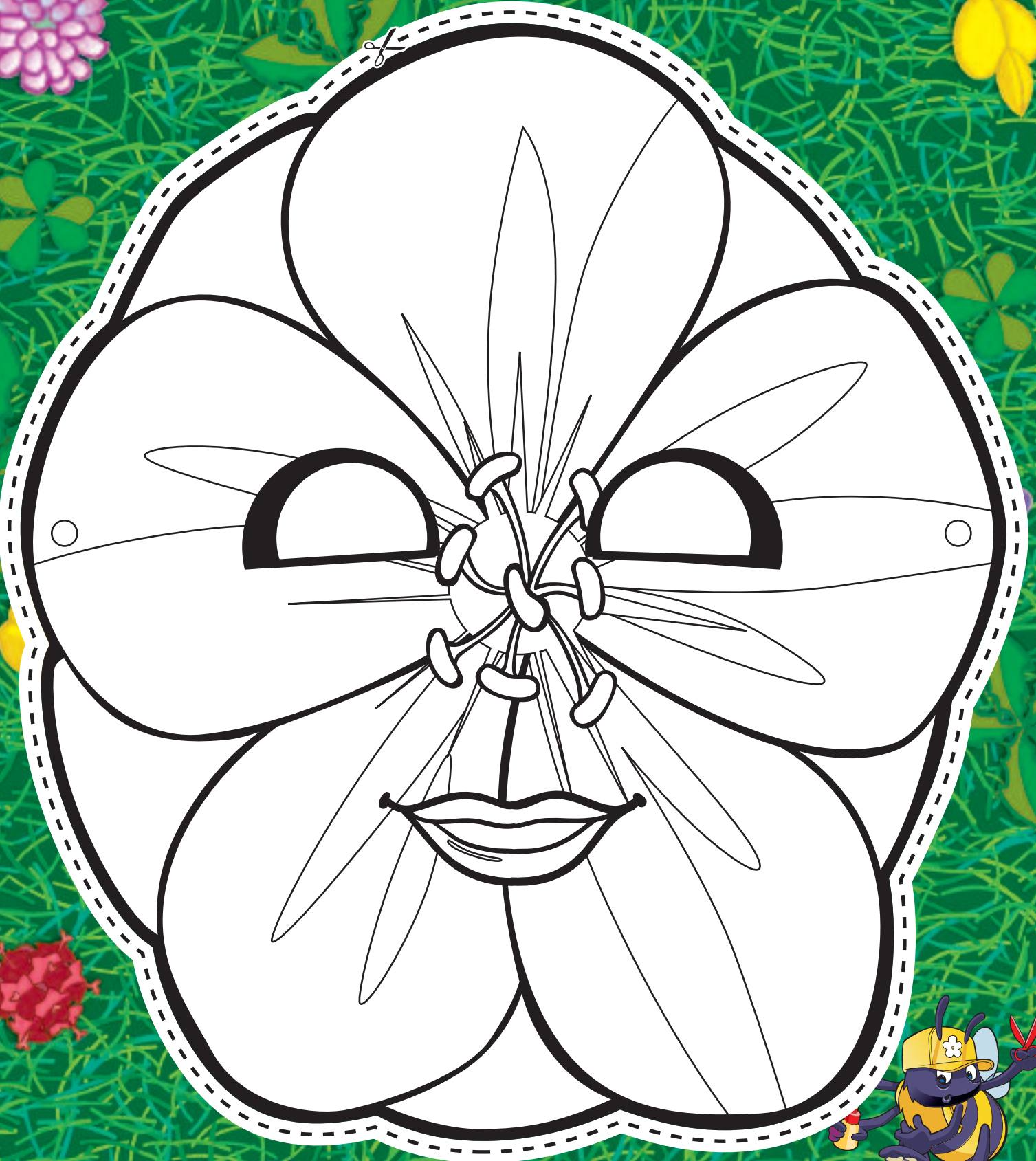


Flower Mask

Wood Cranes-bill

Instructions:

1. Colour your mask in on the worksheet, it can be any colour you like!
2. Using scissors, carefully cut out the mask following the dotted line (don't forget to cut out the eye holes!)
3. Use a pencil to make a hole on either side of the head where the guides are.
4. Take a piece of elastic and tie a knot in one end. Thread this through one of the holes so that the knot is on the front.
5. Thread the other end through the other hole. Make sure the elastic is long enough to go around your head and tie a knot in the loose end.



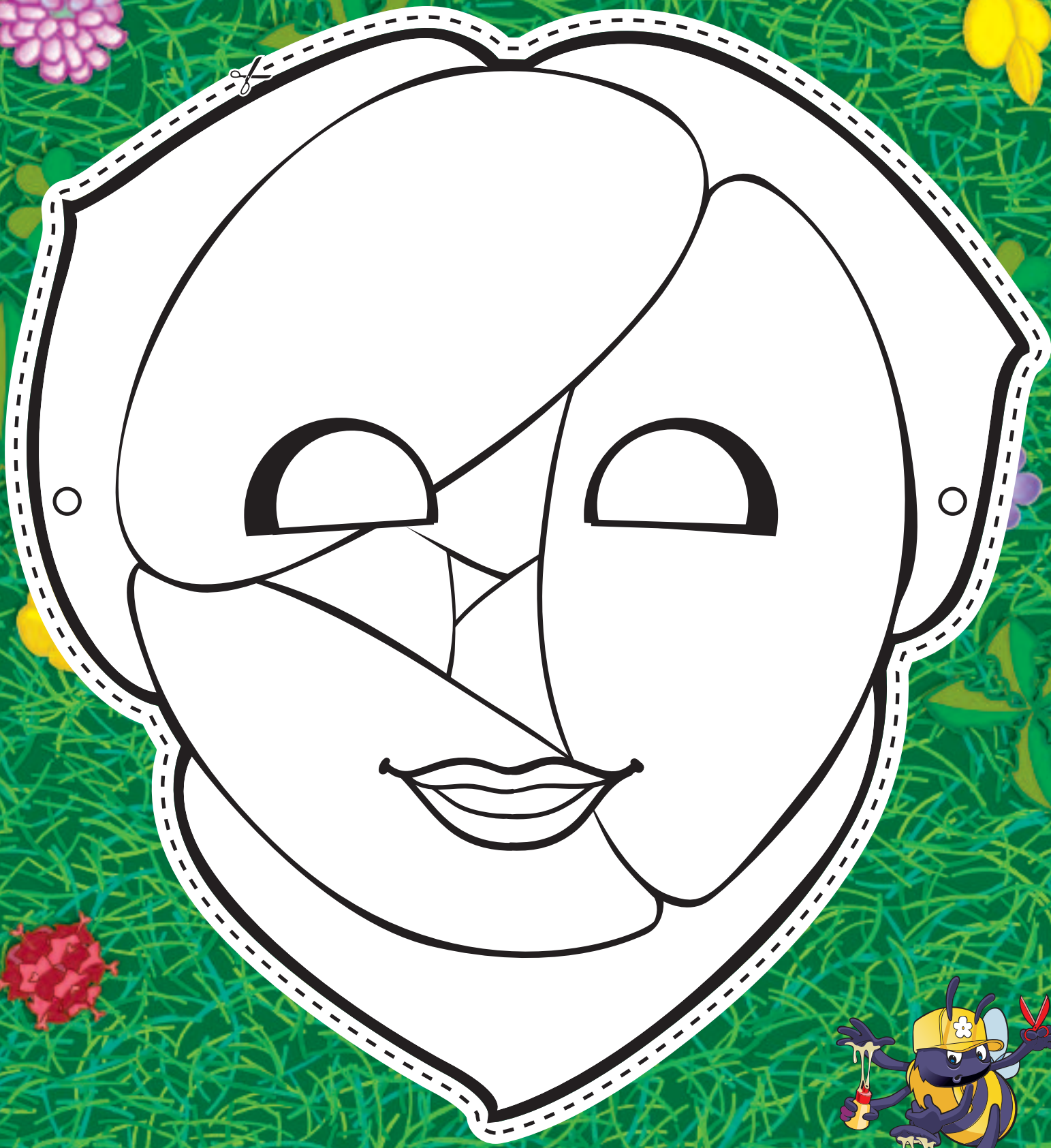


Flower Mask

Globe Flower

Instructions:

1. Colour your mask in on the worksheet, it can be any colour you like!
2. Using scissors, carefully cut out the mask following the dotted line (don't forget to cut out the eye holes!)
3. Use a pencil to make a hole on either side of the head where the guides are.
4. Take a piece of elastic and tie a knot in one end. Thread this through one of the holes so that the knot is on the front.
5. Thread the other end through the other hole. Make sure the elastic is long enough to go around your head and tie a knot in the loose end.





Flower Mask

Meadow Buttercup

Instructions:

1. Colour your mask in on the worksheet, it can be any colour you like!
2. Using scissors, carefully cut out the mask following the dotted line (don't forget to cut out the eye holes!)
3. Use a pencil to make a hole on either side of the head where the guides are.
4. Take a piece of elastic and tie a knot in one end. Thread this through one of the holes so that the knot is on the front.
5. Thread the other end through the other hole. Make sure the elastic is long enough to go around your head and tie a knot in the loose end.

