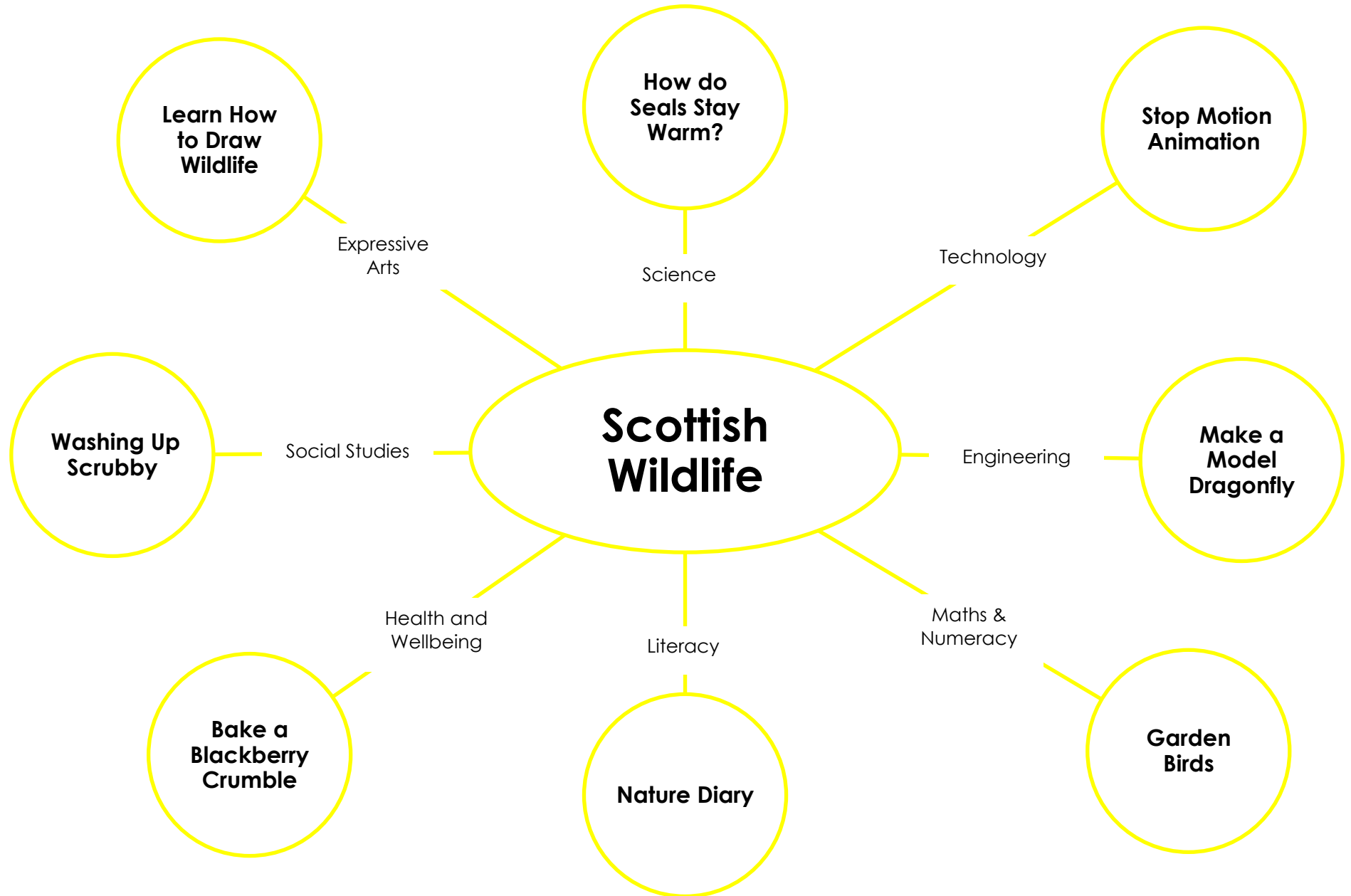




Learning from Home



Science Challenge



How do Seals Stay Warm?

About 40% of all grey seals live in UK waters – and about 90% of these, breed at colonies in Scotland. Try this experiment and find out how they have adapted to keep warm.

You will need:

- Vaseline (or cooking lard)
- Two plastic bags
- A bowl of water and ice cubes
- A stopwatch
- Two large rubber bands
- An adult helper



Image from clipart-library.com

What to do:

1. Put one hand inside one of the plastic bags.
2. Ask your helper to spread a thick layer of Vaseline (**or lard**) over your other hand.
3. Slide the second plastic bag over the hand with the Vaseline on.
4. Squeeze the air out of the bags.
5. Put a rubber band over the top of each of the plastic bags, round your wrists, to stop them falling off. Make sure it's not too tight!
6. Stick your hands in the bowl of ice water. Don't let any water get inside the plastic bags.
7. Time how long you can keep each hand in the water for. **Make sure you take each hand out when it starts to feel uncomfortable. Don't hurt yourself!**

Did one of your hands start to feel uncomfortable before the other one?

The Science:

Most people can keep the hand covered in Vaseline (or lard) in the water for longer than the other hand. Vaseline acts as an **insulator**. It keeps the heat from your hand escaping into the water. The hand without the Vaseline doesn't have this extra protection and it loses heat quickly to the water.

Animals like grey seals, which live in cold habitats, grow a thick layer of fat called **blubber**. This fat acts just like Vaseline - it is an insulator. The blubber helps the animal to retain its body heat and prevents the body heat being lost to the surroundings.

Activity adapted from planet-science.com

Technology Challenge



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Make a Stop Motion Animation

Remember - ask an adult for permission before downloading anything!

Stop motion is a fun way to make short, animated films using a camera and a stop motion app on a smartphone or tablet. You take a series of pictures with slight changes between frames which gives the impression of movement.



Here is a link to a video showing how to make a stop motion nature film:

<https://scottishwildlifetrust.org.uk/resource/make-your-own-nature-stop-motion-film/>

Cut out animation is a form of stop motion which uses pictures, drawings, photographs etc. These are placed on a background which can be very simple – plain paper or card or a scene from a magazine or a printed picture.

Click here to watch a simple example: <https://www.youtube.com/watch?v=z1zxsksWsGs>

You will need:

- A smart phone or tablet
- A free stop motion app (E.g., **Stop Motion Studio**)
- Blue tack
- Space for your film set
- Props and characters to star in your film (e.g., painted stones, Plasticine, salt dough, Lego, drawings on paper, magazine pictures, printed images)



Images from Clipart-library.com

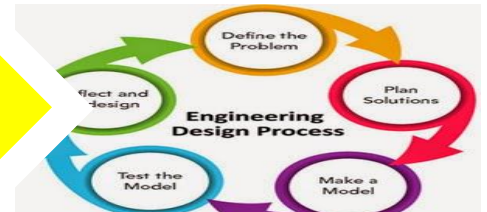
How to make your stop motion film:

- *Download a stop motion app on to your phone or tablet
- Decide on your characters and story- perhaps make a story board.
- Make or collect your props and characters.
- Decide how you are going to film (camera facing down or to the front).
- Create your film set.
- Position your camera (you can use a tripod or if downward filming use a table or a piece of wood bridged over two chairs to balance your device on. Use blue tack to keep the camera in place.
- Keep things constant – don't move the set or your camera.
- Take a picture: one frame = one picture.
- Move your characters and props a small amount between each picture. Take your time, the more frames in your film the more effective your finished product will be.
- The app does the rest. When you press play all the pictures (frames) are run together to give the illusion of motion.
- If you make a mistake or have a finger in shot, you can easily delete a frame.



Activity adapted from scottishwildlifetrust.org.uk/

Engineering Challenge



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Make a Model Dragonfly



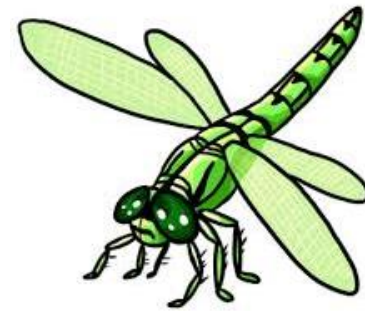
Dragonflies love watery habitats. You can find them in places like lochs, ponds, rivers, canals, burns and bogs! Scotland is home to around 29 different species.



When at rest, a dragonfly holds its wings out from its body, and can look quite beautiful.

What you will need:

- Two 30cm lengths of strong, bendable wire
- Two long, coloured pipe cleaners
- Two white buttons or beads, with a hole in each
- Coloured cellophane or sweet wrappers (optional)
- Sticky tape
- Permanent marker pens



Instructions:

1. Thread a pipe cleaner through one of the beads (or buttons).
2. Twist the ends of the pipe cleaner together to stop the bead falling off.
3. Repeat with the second pipe cleaner, and the second bead.
4. Finish making the dragonfly's body, by twisting the two pipe cleaners together.
5. Add a black dot to each of the beads – these are the eyes.
6. To make the wings – bend the wire into a double set (a figure of eight) – leave enough wire at the ends to attach to the body.
7. Wrap each wing with the cellophane or sweet wrappers; or, if you don't have those, cover them in sticky tape and then colour the tape with the markers.
8. Your dragonfly is ready to fly!
9. You could make a few and make a dragonfly mobile. Simply make a cross shape out of cardboard, and then attach each dragonfly using sellotape and string.
10. Add another piece of string to the top centre of the cardboard cross and hang at a location of choice to brighten up the room.

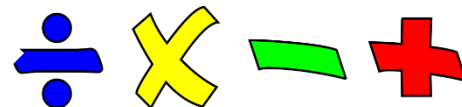


Activity from <https://scottishwildlifetrust.org.uk/>
Images from clipart-library.com

Illustration by Corinne Welch © Royal Society of Wildlife Trusts 2015



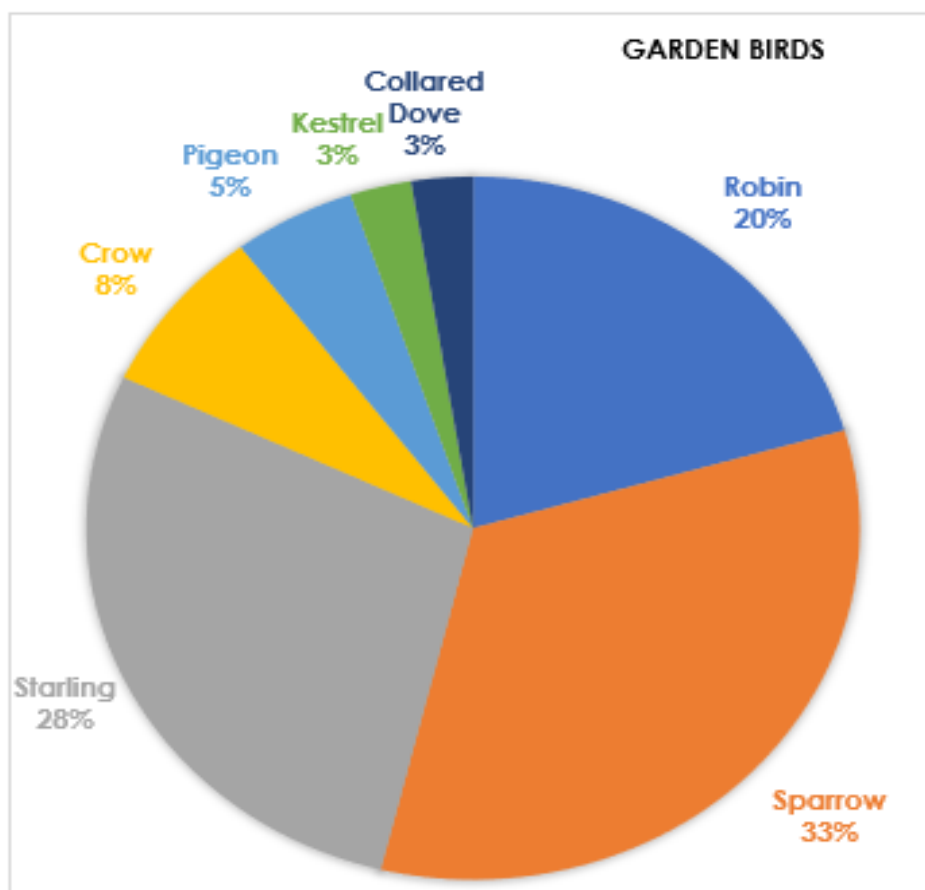
Maths & Numeracy Challenge



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Garden Birds

Billy counted the birds that appeared in his back garden for 1 week. The results are displayed in the pie chart below.



Questions

1. What was the most common bird in Billy's garden that week?
2. Which bird(s) was the least common?
3. If Billy saw 100 birds altogether, how many were starlings?
4. Robins made up 20% of the birds Billy saw. How can 20% be expressed as a fraction?
5. If Billy had seen 200 birds that week, how many would have been pigeons?
6. Make up your own question based on the pie chart and ask a grown up at home. Did they get it right?

Challenge: Carry out your own bird count then create a chart (bar or pie) showing how many birds visited your garden.

Literacy Challenge



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Nature Diary

Today you are being asked to write an entry for a nature diary. This doesn't have to be a one-off exercise as it would be a great way to keep track of what you've seen and to learn new things as you go. You can use any type of notebook or paper that you like, or you could type it up on a computer.

What you will need:

- A notebook, some paper, or a computer
- Pencils, pens, or a computer
- A view of an outdoor space – even if it's just through the window!



How to write your nature diary:

1. It is important to write your diary entry in a style that works for you. You might want to use full paragraphs; bullet points or short sentences and abbreviations - the choice is yours.
2. It's a good idea to start each entry with the date. You could also add the time that the entry relates to.
3. You may also want to note down the weather – that way you could look back to see if it influenced the type of wildlife you saw.
4. It can be very helpful to add drawings and/or photographs. This can help you to remember what you have seen, and to explore it in more detail later. If you don't know what something is for example, you can make a drawing or take a photo. Then you can use the picture to see if you can find out more later by using books and the internet.

Example layout

Date:	Time:	Weather outside:
Wildlife observed outside (Name + picture and a sentence explaining where you saw the wildlife, what it looked like, what it was doing etc):		
Further information (from internet research, books etc)		
Name of animal or plant /tree:		
•		
•		
•		
•		



Activity adapted from scottishwildlifetrust.org.uk/
 Images from clipart-library.com



Health & Wellbeing Challenge

Bake a Blackberry Crumble

Blackberries are the fruits of brambles – a thorny shrub of the rose family.

These plants can be found in many habitats in Scotland, including woodlands, hedgerows and gardens. The blackberries appear during Autumn. Out of season, you can still often buy fresh or frozen blackberries in most supermarkets.

Note: If you don't like or don't have blackberries, you could substitute these with another fruit like apples or pears.

What you need:

- Blackberries (450g) **(or alternative fruit)**
- Caster sugar (2 tbsp)
- Plain flour (225g)
- Soft brown sugar (150g)
- Soft butter (75g)
- Baking powder (one level tsp)
- A mixing bowl
- A wooden spoon
- Oven gloves
- An oven



How to bake a wild blackberry crumble: **Adult Supervision is required**

1. Wash the blackberries (if fresh) and arrange them in a shallow ovenproof dish. (If using apples or pears, these need to be washed and carefully peeled and sliced – **ask a grown up for help**)
2. Sprinkle the fruit with caster sugar.
3. Mix the remaining ingredients in the mixing bowl, using your fingers and thumbs work the mixture until it becomes crumbly.
4. Pour the crumble mixture on top of the fruit.
5. Bake in the oven at 180°C (Gas mark 4) for 30-40 minutes.
6. Using the oven gloves, carefully take the crumble out from the oven and leave it to stand. **(Be careful as this will be very hot!)**
7. When it has cooled to a suitable heat – enjoy!

Activity and photo from scottishwildlifetrust.org.uk/

Social Studies Challenge



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Make a Washing Up Scrubby

Adult supervision recommended

Many items in the home contain plastic, and it's not just the obvious ones! For example, most dishcloths contain man-made plastic fibres. It's important that we try to **reduce, reuse** and **recycle** whenever we can and especially when it comes to plastic.

Many animals can be badly affected by the things we throw away. For example, some can become trapped in plastic bags or ring pulls, fish can die from eating plastic in the seas and our rivers. If the fish die, then other creatures such as birds and seals may also die as they will have no food source.

Try this simple activity to turn your old clothing into a sustainable dishcloth, and **reduce, reuse** and **recycle**.



What you will need:

- Clothes pegs
- A square reusable tub
- Unwanted socks
- Scissors



Click here to watch a video showing exactly how to make the scrubby:

https://www.youtube.com/watch?v=5NSXMc0xmCU&feature=emb_imp_woyt



Clipart from clipart-library.com

Idea and photo from <https://scottishwildlifetrust.org.uk/>

Expressive Arts Challenge



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Learn How to Draw Wildlife

Drawing wildlife is a fun way to observe and learn about the natural world.

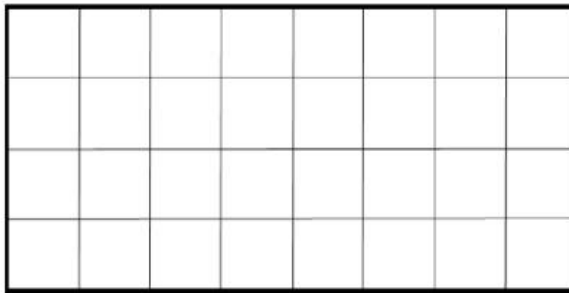
Sometimes knowing where to start can be a bit daunting and it can be easy to get frustrated while trying to make the picture perfect. The key is to not worry – focus on drawing what you see and remember to enjoy yourself!



© Andrew Parkinson/2020VISION

Practice makes perfect and, to give your eye and brain a helping hand, you can start off your skills by using a **drawing grid**.

This technique works for drawing other things too, from objects to people, so it's well worth giving it a go.



What you will need:

- A computer and printer (or a picture cut from a magazine)
- A pencil
- A ruler

How to complete your drawing grid:

1. Start by drawing a grid of squares over your printed picture or magazine cut out.
2. It helps to make the squares an easy size to measure out, such as 2cm x 2cm
3. On a new piece of paper or beneath your printed picture, draw a new grid (lightly, so that it doesn't show through your drawing later) with the same number of squares and with the same dimensions as you drew on the printed picture.
4. Taking one square at a time, draw what you see – keep going until you get a complete outline.
5. Now apply the same method to complete the shading – shading one square in at a time.

Activity and image from
scottishwildlifetrust.org.uk/

Once you're done, you should have a pencil copy of the printed picture!

