

Ambitious, capable learners: Sharks, skates and sums to solve

Discover four wild ideas to plan an alternative Easter. You'll find a series of numeracy exercises; a printable reading comprehension; and tips on symmetrical sketches - plenty for your pupils to be getting on with as spring approaches!



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Ambitious, capable learners: sharks, skates and sums to solve

To use this resource, you will need:

- PDFs of 'Mermaid's Purses' and 'High Livin' Hares' (links within document)
- This document – there's a brief summary below, with the main resources and links on the following pages.

As winter slips silently into spring, here are four wild ideas to plan an alternative Easter:

Step 1: Mermaid's Purse Egg Hunt

This numeracy activity can be played in two ways, with pupils being instructed to consider either the **perimeter** or the **area** of the rectangles (the mermaid's purses) before the game begins. To avoid complicating the principles of **perimeter** and **area**, there are two sets of directions, and you can print the set that best meets your lesson aims.

The game's **objective** is to gather mermaid's purses from the 'beach' and plot their coordinates on the coordinate grid, before measuring the area or perimeter of each rectangle. Pupils will work in pairs, taking turns to plot the shapes and to check each other's work.

The winner of the game will be the pupil who has 'collected' the largest total area or perimeter of mermaid's purses!

Step 2: Numeracy egg-sersize

After practising their perimeters and areas in the Mermaid's Purse Egg Hunt, why not challenge the pupils to complete a data set and answer some differentiated questions? They could even use the data set to devise their own questions for the rest of the class.

Step 3: Literacy – High Livin' Hares comprehension

A printable reading comprehension designed for close reading of the 'High-Livin Hares' article. Use the mark scheme available, and display the teachers answers for pupils to self-assess their work, or peer mark a learning partner's answers.

Step 4: Symmetry in Art

Last edition's gallery had a common thread! Young artists used the symmetry in the faces of the hare and the tawny owl, or were inspired by the symmetry of the ladybird's body, and a photographer captured the mesmeric symmetry in a hawk moth's wings.

Why not print the selection of symmetrical animals and let your pupils try these **seven steps** to sketching? And remember, if your pupils make anything they're really proud of, please send a photograph through to chris.baker@northwaleswildlifetrust.org.uk and it may make an appearance on our website or social media!

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Step 1: Mermaid's Purse Egg Hunt

Measuring the **perimeter** of rectangles

Aims: Take turns to plot egg cases on the grid. Score points according to the perimeter of the egg case plotted correctly.

Resources:

- Mermaid's Purse Egg Hunt grid – see overleaf
- Egg case Coordinates – see overleaf
- Pencil crayons / coloured pens
- A PDF of 'Mermaid's Purses' – [download here](#)

Instructions:

1: One grid will be used between a pair of players. Each player should choose a colour and write their name in that colour at the top of the grid. Cut the **Egg case Coordinates** and lay them face down in a pile.

2: One player takes a card from the pile and plots the four points of the **Mermaid's Purse Egg Hunt grid**. They connect their points to form a rectangle. The same player measures the perimeter of the rectangle and writes that number inside the shape, at which point they have 'discovered' the egg case.

It is advised that each player checks their opponent's work to ensure the pupils fully understand the concepts of 'perimeter' and the rules of the game.

3: The second player repeats the same process.

4: Players alternate until the agreed time is finished / both have taken an agreed amount of cards / all cards have been taken

5: Players add up their totals, and write the overall total in the space at the top of the sheet

Differentiation: To make the game **less challenging**, use only half of the coordinate cards, or, alternatively remove the flapper skate from the cards before beginning. To make the game **more challenging**, pupils could be given the coordinates without the egg case identification and only gain their points once they have correctly identified the egg case they have plotted.



Step 1: Mermaid's Purse Egg Hunt

Measuring the area of rectangles

Aims: Take turns to plot egg cases on the grid. Score points according to the area of the egg case plotted correctly.

Resources:

- Mermaid's Purse Egg Hunt grid – see overleaf
- Egg case Coordinates – see overleaf
- Pencil Crayons / coloured pens
- A PDF of 'Mermaid's Purses' – [download here](#)

Instructions:

1: One grid will be used between a pair of players. Each player should choose a colour and write their name in that colour at the top of the grid. Cut the **Egg case Coordinates** and lay them face down in a pile.

2: One player takes a card from the pile and plots the four points of the **Mermaid's Purse Egg Hunt grid**. They connect their points to form a rectangle. The same player measures the area of the rectangle and writes that number inside the shape, at which point they have 'discovered' the egg case.

It is advised that each player checks their opponent's work to ensure the pupils fully understand the concepts of 'area' and the rules of the game.

3: The second player repeats the same process.

4: Players alternate until the agreed time is finished / both have taken an agreed amount of cards / all cards have been taken

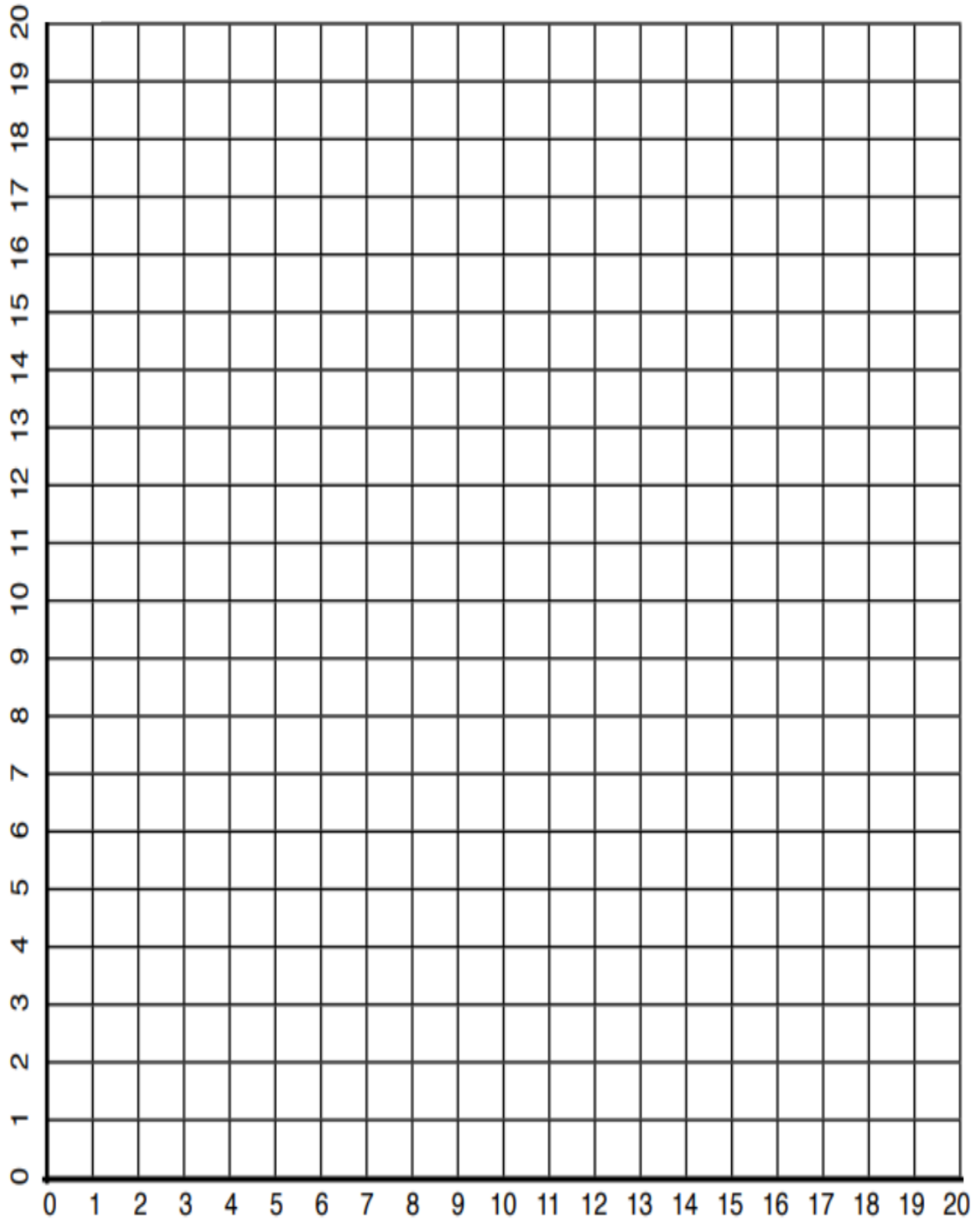
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Mermaid's Purse Egg Hunt

Pupil 1		Pupil 2	
Total score		Total score	



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Mermaid's Purse Egg Hunt Coordinates

<p>blackmouth catshark (0,0) (0,3) (5,0) (5,3)</p>	<p>thornback ray (0,6) (6,7) (0,9) (9,7)</p>	<p>small-spotted catshark (0,6) (0,8) (6,6) (6,8)</p>	<p>undulate ray (10,9) (10,13) 17,9) (17,12)</p>
<p>bull huss (11,1) (11,11) (16,1) (16,11)</p>	<p>blonde ray (0,9) (0,20) (4,9) (4,20)</p>	<p>cuckoo ray (4,8) (4,14) (6,8) (6,14)</p>	<p>bull huss (11,1) (11,12) (16,12) (16,20)</p>
<p>flapper skate (0,0) (0,18) (8,8) (8,18)</p>	<p>cuckoo ray (1,12) (1,18) (3,12) (3,18)</p>	<p>spotted ray (4,17) (4,19) (9,17) (9,19)</p>	<p>blonde ray (16,9) (16,20) (20,9) (20,20)</p>
<p>small-spotted catshark (18,1) (18,8) (20,1) (20,8)</p>	<p>undulate ray (0,3) (0,7) (7,3) (7,7)</p>	<p>thornback ray (7,7) (7,14) (9,7) (10,14)</p>	<p>blackmouth catshark (4,14) (4,17) (9,14) (9,17)</p>
<p>spotted ray (9,14) (11,14) (9,19) (11,19)</p>	<p>flapper skate (12,2) (12,20) (20,2) (20,20)</p>	<p>small-eyed ray (12,0) (12,3) (20,0) (20,3)</p>	<p>small-eyed ray (12,3) (12,6) (20,3) (20,6)</p>



Step 2: Numeracy egg-sersize

1. Work out the perimeter for each of the egg cases
2. Work out the area for each of the egg cases

Challenge: choose any three egg cases and draw them on squared paper. Label them with the perimeter and area of the rectangle. You could even add the 'horns' of the egg cases and colour the shapes to match the pictures in the Egg case identification image (see PDF of 'Mermaid's Purses').

	Egg case	Avg height (cm)	Avg width (cm)	perimeter (cm)	area (cm ²)
sharks	Blackmouth catshark	5	3		
	Small-spotted catshark	7	2		
	Bull huss	9	5		
skates and rays	Spotted ray	5	2		
	Cuckoo ray	6	2		
	Thornback ray	7	3		
	Undulate ray	7	4		
	Small-eyed ray	8	3		
	Blonde ray	11	4		
	Flapper skate	18	8		

Eggstra Hard - are the following statements true or false?

1. There are five egg cases that have greater perimeters than their area
2. The cuckoo ray's egg case has the smallest area
3. The egg cases of the bull huss, the blonde ray and the small-eyed ray could all fit within the area of the flapper skate egg case



Teachers' answers sheet

	Egg case	Avg height (cm)	Avg width (cm)	perimeter (cm)	area (cm ²)
sharks	Blackmouth catshark	5	3	16	15
	Small-spotted catshark	7	2	18	14
	Bull huss	9	5	28	45
skates and rays	Spotted ray	5	2	14	10
	Cuckoo ray	6	2	16	12
	Thornback ray	7	3	20	21
	Undulate ray	7	4	22	28
	Small-eyed ray	8	3	22	24
	Blonde ray	11	4	30	44
	Flapper skate	18	8	52	144

Eggstra Hard - are the following statements true or false?

1. There are five egg cases that have greater perimeters than their area

False, there are only four egg cases that have greater perimeters than their area: blackmouth catshark, small-spotted catshark, spotted ray, cuckoo ray

2. The cuckoo ray's egg case has the smallest area

False, the cuckoo ray's egg case is 12cm² but the spotted ray's egg case is even smaller, with an area of only 10cm²

3. The egg cases of the bull huss, the blonde ray and the small-eyed ray could all fit within the area of the flapper skate egg case?

True, the areas of bull huss (45cm²), the blonde ray (44cm²) and the small-eyed ray (24cm²) amount to 113cm², so the flapper skate would still have a further 31cm² left!



Step 3: Literacy – High Livin’ Hares comprehension

Resources:

- A PDF of ‘High Livin’ Hares’ – [download here](#)

1 Why are mountain hares difficult to spot in winter? (1)

2 Where can you find mountain hares in the UK? (1)

3 Circle which of the following animals is species native to the UK? (1)

- a. rabbits b. brown hares c. mountain hares

4 Find three ways to identify a mountain hare. (3)

a - _____

b - _____

c - _____

5 When does the mountain hare hunt? (1)

6 How does a mountain hare’s behaviour differ from a rabbit’s behaviour? Find two examples. (2)

a - _____

b - _____

7 Name four predators that hunt mountain hares. (4)

a - _____ b - _____

c - _____ d - _____

8 How will climate change affect the survival of mountain hares? (2)



Teachers' answers sheet

1 Why are mountain hares difficult to spot in winter?

They turn white – perfect winter camouflage.

2 Where can you find mountain hares in the UK?

Scotland

3 Which of the following is a native species?

C - mountain hares

4 Find three ways to identify a mountain hare.

Mountain hares are smaller than a brown hare, but bigger than a rabbit.

Their ears are longer than a rabbit's but shorter than brown hares's ears.

Their ears have black tips.

Their eyes are brown – the brown hare has amber eyes.

Their coat is pale grey-brown in summer and white in winter. Their tail is always white.

5 When does the mountain hare hunt?

Mountain hares are nocturnal.

6 How does a mountain hare's behaviour differ from a rabbit's behaviour? Find two examples.

They live in 'forms' rather than burrows.

They are shy and often live alone.

7 Name four predators that hunt mountain hares.

foxes stoats buzzards golden eagles

8 How will climate change affect the survival of mountain hares?

Mountain hares turn white in winter to blend with their surroundings and evade predators. Later snow, or no snow at all, will mean bright white mountain hares will be more visible to predators.



Step 4: Symmetry in Art

Symmetry in nature – seven steps to successful sketching!

Resources:

- A selection of (fairly) symmetrical wildlife photographs – some are provided on the pages overleaf



Step 1: print the photographs attached



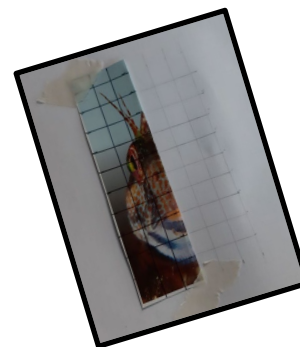
Step 2: carefully fold the image down the central line of symmetry



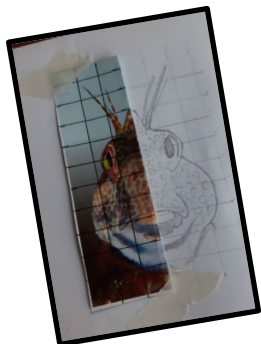
Step 3: you may choose to add a grid over the image to help navigate features or patterns

(*tip:* extend the grid to cover the same distance on the blank paper)

(*tip 2:* use pencil so it can be erased later)



Step 4: use blu-tack or masking tape to hold the picture down



Step 5: draw the other half of the picture

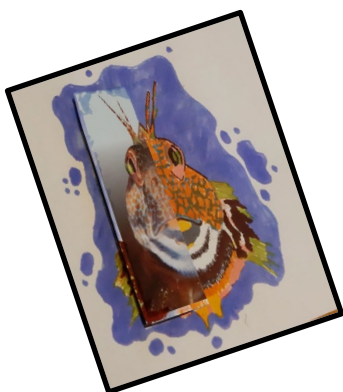
(*tip:* don't panic if it doesn't look exactly like the other half because nature is actually very rarely 100% symmetrical)

Step 6: when you are happy with your drawing, glue the original half of the image next to your own



Step 7: use pencil, crayons or paints to decorate your half of the picture

(*tip:* you can extend both pictures beyond their borders now, joining the two halves into part of something entirely new)



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Basking shark © Alexander Mustard/2020VISION

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Bee orchid © Dawn Monrose

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Barn owl © Danny Green/2020VISION

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Brown hare © Margaret Holland

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Red squirrel © Mark Hamblin/2020VISION

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Robin © Mark Hamblin/2020VISION

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Tompot blenny © Paul Naylor

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Pine marten © Terry Whittaker/2020VISION

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Yellow flag © Vaughn Matthews

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