



Glasgow Science Festival 2025: Glasgow Celebrates Primary STEAMS Activity Pack

Glasgow Science Festival 2025 will be in-person from 5th to 15th June and online from 1st to 30th June.

Please visit the website for our programme and digital content.

www.glasgowsciencefestival.org.uk

Table of Contents:

- ♦ Alexander Graham Bell - Read My Lips
- ♦ This is no J-Oak
- ♦ Fast As a Falcon
- ♦ Save the Swimming Salmon
- ♦ STEAMS Pack Kit List

For classroom use please see listed on each activity how they link to the national curriculum.



Alexander Graham Bell – Read My Lips

Test your lip-reading abilities with this Glasgow Science Festival game inspired by Alexander Graham Bell.

The Science:

What do you think of when you think of a famous Scottish bell? Well, we think of Alexander Graham Bell, born in Edinburgh in 1847, who famously invented the telephone.

Despite creating a device that changed the entire world, Alexander Graham Bell didn't think of the telephone as his greatest work – instead he thought it was the work he did with the deaf community.

Both Alexander Graham Bell's parents were deaf and so was his wife. He believed the deaf community was isolated from the hearing community and he wanted to improve communication between these communities. Bell tried to change this by teaching people how to lip read, rather than communicate using sign language. His influence had significant impact on the deaf community and lip reading became the main way deaf children were taught allowing deaf children to integrate into day schools, not just boarding schools.

However, part of his teaching involved banning the use of sign language which left many deaf people feeling isolated and had a significant impact on deaf culture. Now deaf people communicate using a mix of sign language and lip reading.

In English only around 30% of words can be accurately identified by lip reading, even by people who are really good at it. This is because many words have the same lip shape but mean different things for example, witch and which. Have a look in the mirror, or get a friend to mouth them – can you tell the difference? Some words sound different and mean different things yet form the same lip shape when spoken. Try out these words: gap, cab and ham or mad, ban and mat. Could you tell which word was being spoken? It can help to have context and using body language.

Have a go at our lip-reading game and see how you get on!

Kit List:

- ♦ A person to play with
- ♦ Lip reading cards (you can print them or read them online)
- ♦ Timer



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Alexander Graham Bell – Read My Lips

How To:

1. Grab a partner and select a category to play from Scotland, Science, Hobbies, Nature and Random.
2. You have 30 seconds on the clock. During this time player 1 mouths out the words on the card and player 2 has to guess them. Each card guessed correctly is one point.
3. If the player 2 is struggling, then they can use a lifeline. Each player has two lifelines per round. One is to add body language and the second is a hint. Player 1 should make up a hint and body language depending what is on the card.
4. Tally up how many cards player 2 got correct in the 30 seconds. Each card is worth one point. Swap and let the next player have a go.
5. The winner is the person with the most points at the end of the game.
6. Play as many rounds as you like!
7. Were some categories easier than others? Think why might that be the case? Why not add in some of your own cards to the game and play again.

Curriculum for Excellence:

- I understand that people can feel alone and can be misunderstood and left out by others. I am learning how to give appropriate support. HWB 0-08a / HWB 1-08a / HWB 2-08a / HWB 3-08a / HWB 4-08a
- I explore how gesture, expression and emphasis are used to help understanding. I can listen and respond to familiar voices in short, predictable conversations using straightforward language and non-verbal techniques as appropriate such as gesture and eye contact. MLAN 2-02a

Alexander Graham Bell – Read My Lips

Lip Reading Cards

Random

Blue

Saturday

**Glasgow Science
Festival**

Apple

Computer

Birthday

Time

Breakfast

Music

Lip Reading

Alexander Graham Bell – Read My Lips

Lip Reading Cards

Scotland

Glasgow

Heather

Highlands

Bagpipes

Raining

Subway

Edinburgh

Haggis

Kilt

Tartan

Alexander Graham Bell – Read My Lips

Lip Reading Cards

Science

Oxygen

Stars

Earth

Gravity

Laboratory

Research

DNA

Muscle

Energy

Chemical

Alexander Graham Bell – Read My Lips

Lip Reading Cards

Hobbies

Cinema

Reading

Swimming

Rock Climbing

Cycling

Running

Piano

Dancing

Singing

Chess

Alexander Graham Bell – Read My Lips

Lip Reading Cards

Nature

Leaf

Grass

Bird

Chicken

Dog

Sun

Fish

Worm

Butterfly

Tree

This is no J-Oak

Go tree-spotting around your local area to find some old oak trees using this Glasgow Science Festival survey.

The Science:

Did you know the tree in the Glasgow crest is an Oak tree?

Oak trees are a very important tree species as they provide a home, food or shelter for many different plants and animals. For example, oak trees provide a home for 500 different types of insects. If oak trees are removed it can have an impact on the other plants and animals that rely on them, this is because oak trees are part of an ecosystem.

Have you ever spotted one of these very important trees? Here is a list of the features that will help you spot an oak tree:

- Oak trees have distinctive leaves, they have lobes which are longer than they are wide, they usually have 5-6 lobes per leaf.
- Oak trees produce acorns which provide food for many different animals. During the summer months oak trees start to produce these, which will fall off the tree in September.
- Older oak trees have cracks in the bark.
- The size of oak trees can vary but they do grow up to 30 metres tall.

Head outside and try to spot some oak trees near you! There are oak trees all around Glasgow including the Glasgow Botanic Gardens and along the Kelvin walkway.

Once you have spotted some, carry out some oak tree science to calculate how tall they are and how old they are. Did you know oak trees can live to be up to 800 years old!?

Kit List:

- Tape measure
- Something to mark your spot if working alone
- Pen and pencil – print our oak tree worksheet if you can.



This is no J-Oak

How To:

Measure the height of an oak tree:

1. Stand with your back to the tree and your legs apart.
2. Bend down to look at the tree between your legs but keep your knees straight.
3. You should be able to see the top of the tree – so walk closer or further away from the tree until you can just see the top of the tree (stand upright when moving forward and backwards so that you don't trip).
4. Stop here and if you are on your own place your marker down, if you have a partner with you then stop where you are. Use a tape measure the distance between you or your marker and the tree.
5. Add this distance into our oak tree table.

THINK: Why might we be able to measure the height of a tree like this??

This works because when you can see the top of the tree between your legs – the angle is 45 degrees. Because the tree is 90 degrees to the ground a triangle is formed – this makes the top of the tree and your feet the same distance!

Calculate the age of an oak tree:

1. Wrap your tape measure around the trunk of the tree – this is the circumference of the tree.
2. Add your measurement into our oak tree table.
3. Calculate the age of your oak tree by dividing the circumference of your tree by 1.88 – add this into the next column on our oak tree table.

Location – where did you find your oak tree?	Distance between the tree and your feet – height of your tree (m)	Circumference of the tree (m)	Age of your tree – divide the circumference of your tree by 1.88	Did your tree have acorns?

This is no J-Oak

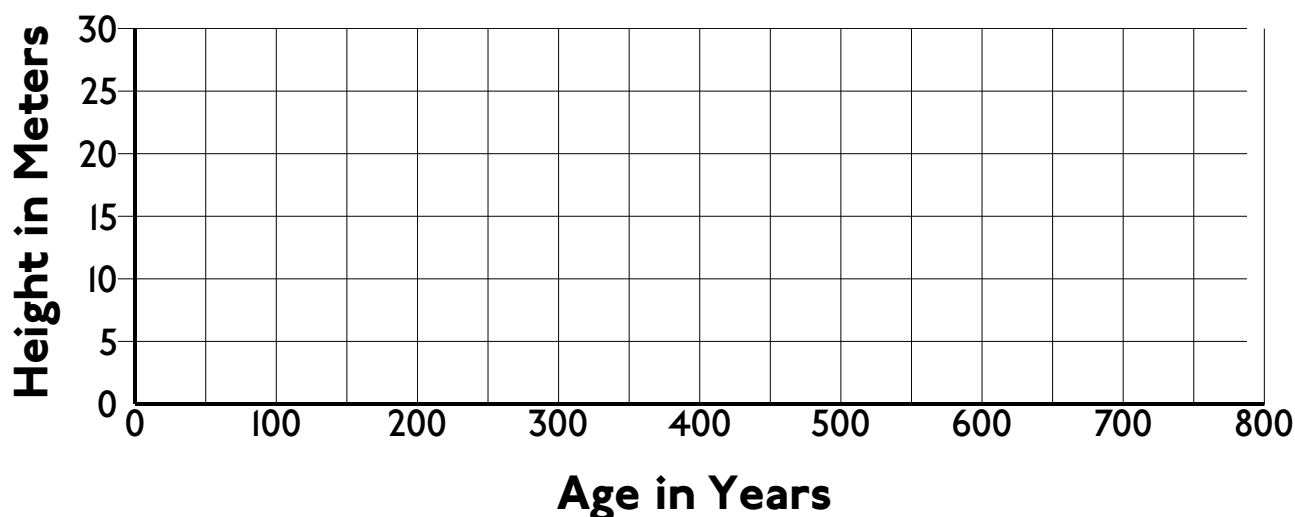
How To:

THINK: If you are looking at your oak trees in summer or autumn did you spot acorns? Oak trees can only produce acorns once they get to a certain age. Can you work out what age that is?

ANSWER: Oak trees must be over 50 years old to start producing acorns.

Plot your findings on our oak tree graph:

1. Using the measurements you calculated in our oak tree table for each tree mark an X.
2. Can you spot a pattern between the height and the age?
3. Perhaps you could expand your research and look at oak trees in different locations, mark the X in different colours for different locations – can you spot any differences?
4. Perhaps you could compare the growth rate of a different tree species to an oak tree. When calculating the age divide the circumference by 2.5. Mark a circle on your graph to represent this different tree species.





This is no J-Oak

Curriculum for Excellence:

- Having determined which calculations are needed, I can solve problems involving whole numbers using a range of methods, sharing my approaches and solutions with others. MNU 2-03a
- I have investigated the everyday contexts in which simple fractions, percentages or decimal fractions are used and can carry out the necessary calculations to solve related problems. MNU 2-07a
- I can use the common units of measure, convert between related units of the metric system and carry out calculations when solving problems. MNU 2-IIb
- I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way. MNU 2-20b
- I have investigated angles in the environment, and can discuss, describe and classify angles using appropriate mathematical vocabulary. MTH 2-I7a
- I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology. MTH 2-2Ia / MTH 3-2Ia

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Fast As a Falcon

Make a peregrine falcon and see how far it can fly using this Glasgow Science Festival worksheet.

The Science:

The next line of the poem to remember the Glasgow crest is 'Here's the bird that never flew'. However, Glasgow is actually home to the worlds fastest bird - a Peregrine Falcon!

Peregrine Falcons are predators that dive through the air to catch smaller birds as prey. They can travel at 200 miles per hour when they are diving to catch their prey. That is almost as fast as cars racing at Formula 1!

Peregrine Falcons have special features that allow them to dive at such fast speeds. As they dive, they tuck in their feet and wings to form a tear drop shape, they become like a stream-lined missile as they plummet towards their prey.

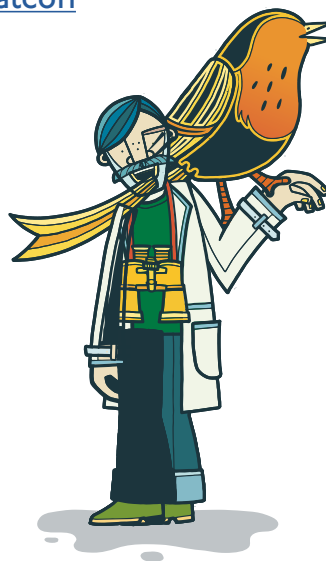
Peregrine Falcons had to develop other features to help them come with diving at such high speeds. They have a special nose which helps slow the air they breathe to help them cope with the force, as well as films which cover their eyes when they are diving down.

Peregrine Falcons live all over the world, they have been found on every continent except Antarctica. Peregrine Falcons live on high up rocks, and because of that have found high rise buildings in cities are a great home. Peregrine Falcons have even set up home in Glasgow in the University of Glasgow spire!

For more information or to find the Peregrines near you please check out the RSPB website.
<https://www.rspb.org.uk/birds-and-wildlife/peregrine-falcon>

Kit List:

- Paper
- Colouring pens
- A 'runway' - a tape measure
- Blue tack, paperclips or really anything you can add to your bird to test how it flies



Fast As a Falcon

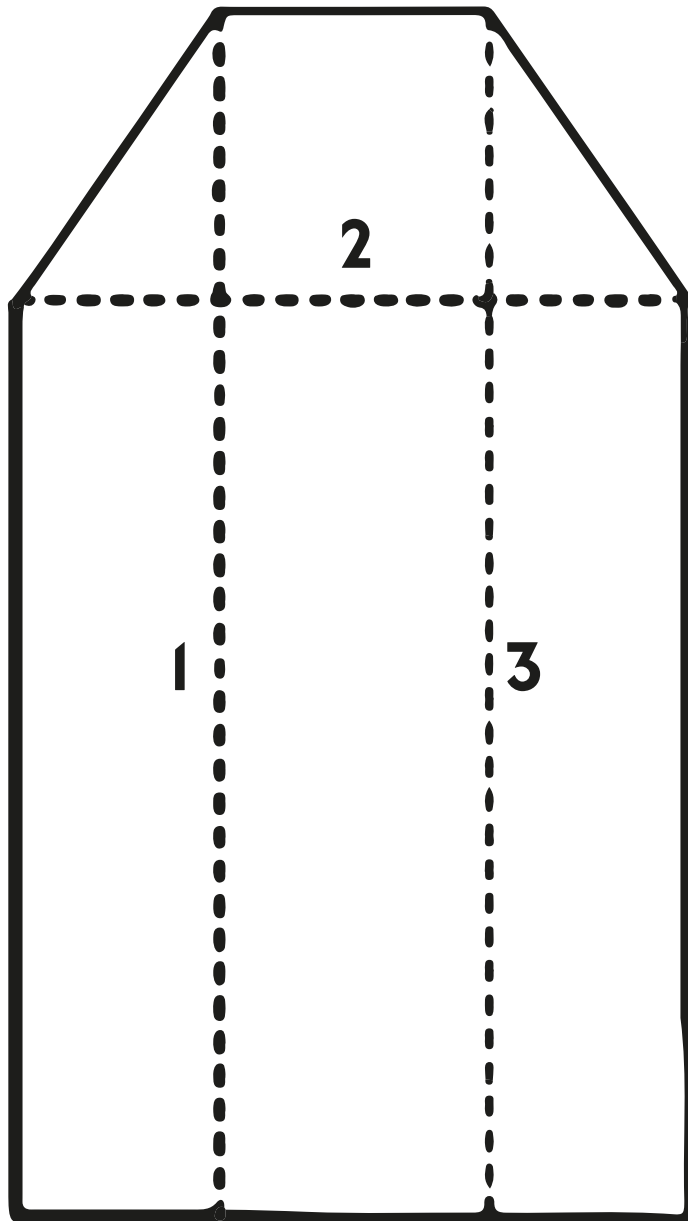
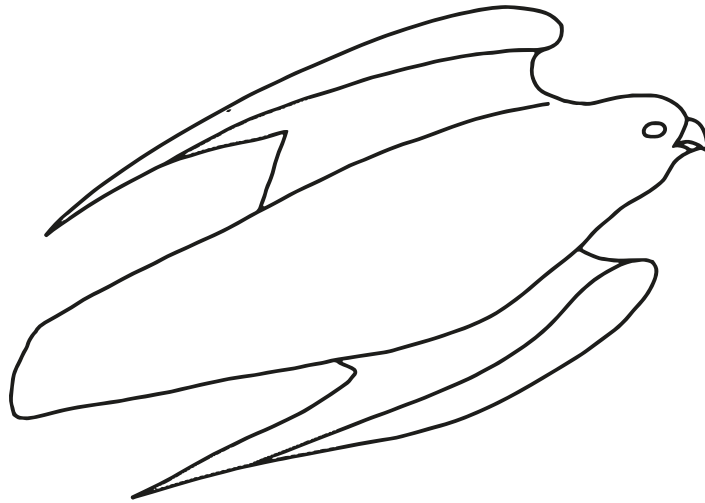
How To:

1. Cut out the pieces from our Peregrine Falcon glider template – do not cut along the dotted lines.
2. Colour in your Peregrine Falcon however you would like.
3. To make your shooter, fold along the dotted lines in the order they are numbered then cover the seam with a piece of tape. The non folded side should remain open.
4. Turn your Falcon over so the blank side is showing. Place your shooter length ways down the body (the open end should be at the bottom) and secure it using a piece of tape big enough to cover all folded edges but leaving the non-folded edge open.
5. Insert your straw into the open end of the shooter. Only push it in about halfway. You might need to give it a bit of a wiggle or your Falcon won't fly.
6. Take a big breath and BLOW into your straw! Watch it go! Measure how far it went.
7. Why not add things like blue tack or a paperclip to your falcon and measure how it goes. did putting it in a different place make a difference? Fill out our table below.

Falcon	Distance Travelled
Paper only	

Curriculum for Excellence:

- I have the opportunity to choose and explore an extended range of media and technologies to create images and objects, comparing and combining them for specific tasks. EXA 2-02a
- I can develop and communicate my ideas, demonstrating imagination and presenting at least one possible solution to a design problem. EXA 2-06a
- By investigating how friction, including air resistance, affects motion, I can suggest ways to improve efficiency in moving objects. SCN 2-07a
- I can extend my knowledge and understanding of engineering disciplines to create solution. TCH 2-12a



tape along this edge

Save the Swimming Salmon

Glasgow Science Festival board game exploring the navigation patterns of salmon.

The Science:

Salmon are born in rivers and live here until they are 1-3 years old. After this they swim down the river into the ocean. The ocean provides them with lots of food so they can grow big and strong.

However, the adult salmon must go back to the river they were born in to produce new young, this is because the mouth of the river provides a safe space for the fish to be born. To do this they have to navigate the sea back to the river and then swim back up the river. This is an impressive watch as salmon must leap up the waterfalls! They also have to be very careful to avoid predators along the way. Salmon are preyed on by other fish like trout, eels and birds but also mammals like seals.

As salmon move upstream their appearance changes. In the ocean they blend in by being a silver colour and they are smooth and streamlined. However, as the fish swim up the river they become red and green which helps attract a partner and their jaw becomes hooked to allow them to fight for mates.

But how do they know where to go? The Earth has a magnetic field. This is what makes a compass work, humans can't sense this but incredibly salmon can – and they use this to navigate the sea back to the river they were born in. They don't just rely on this though, they learn the smell of the river they were born in and this helps them find the exact river.

Can you navigate your salmon to the head of the river it was born in by playing our 2 player swimming salmon game.

Kit List:

- Print out our game board – or draw your own
- Print out our game cards or draw your own
- Colouring materials
- Scissors
- 2 players



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Save the Swimming Salmon

How To:

1. Print out our River board – or draw your own on paper
2. Print and cut out our game cards – or draw your own on paper. Add your own cards to supplement ours. Think about things that might prevent a salmon reaching the river it came from. Your card must make your fish move forward or back 1 or 2 spaces. Think about facts you know about the journey salmon have to make using our science section to help you.
3. Create your own swimming salmon counter
4. Play the game by placing your salmon in the sea and draw a birth card. This is the river your salmon was born in. The winner of the game is the first person to get their salmon to the river it was born in. The youngest player starts by drawing a river card.
5. Post your swimming salmon on socials and tag us on Instagram @glascifest, X @GlasgowSciFest or Facebook at Glasgow Science Festival.

Curriculum for Excellence:

- ♦ I can identify and classify examples of living things, past and present, to help me appreciate their diversity. I can relate physical and behavioural characteristics to their survival or extinction. SCN 2-01a
- ♦ By investigating the lifecycles of plants and animals, I can recognise the different stages of their development. SCN 2-14a

Save the Swimming Salmon

Birth Cards

Tummel

Lyon

Earn

River Cards

Oh no! There is someone fishing ahead – you will need to miss a go to wait for him to leave.

There is a big waterfall ahead but you give it a HUGE leap and make it in one. Move forward two spaces.

You made a wrong turn somewhere along the way – move back one space.

You find a short cut up the river, move forward 2 spaces.

There was heavy rainfall causing the River Tummel to flood. If you are swimming up the River Tummel move back 2 spaces.

The River Lyon has a strong current and you are swimming slowly. If you are swimming up the River Lyon move back 1 space.

Save the Swimming Salmon River Cards

You spot someone fishing ahead but you manage to leap really high to avoid them – move forward 1 space.

You spot someone fishing ahead but you manage to leap really high to avoid them – move forward 1 space.

There is a fish ladder ahead to help you avoid a dam – move forward 1 space.

There is a dam blocking your way. Miss a turn.

There is a fish ladder ahead to help you avoid a dam – move forward 1 space.

You manage to dodge a hungry seal – move forward 2 spaces.

You picked up a sea lice infection which slows you down. Miss a turn.

Your navigation is working perfectly! Move forward 2 spaces.

Save the Swimming Salmon River Cards

A bird has spotted you, quick swim faster. Move forward 1 space.

The waterfall is too high and you didn't leap high enough. Miss a turn and try again.

A bird has spotted you, quick swim faster. Move forward 1 space.

This a familiar smell - you must be on the right track. Move forward 2 spaces.

A bird has spotted you, quick swim faster. Move forward 1 space.

The current isn't too strong today and you are swimming great. Move forward 2 spaces.

You managed to eat lots of food in the ocean so are big and strong. Move forward 2 spaces.

You need to pick up speed to make the next waterfall leap. Move forward 1 space.

Save the Swimming Salmon River Cards

A tree falls blocking the River Earn. If you are swimming up the River Earn move back 1 space.

You are feeling energised move forward 2 spaces.

Your colour is changing from silver to red and green – perfect for attracting a mate. Move forward 1 space.

Your jaw has become a hook ready to fight for a mate. Move forward 1 space.

You find a faster way to go. Move forward 1 space.

You aren't quite sure where you are. Miss a turn to figure it out.

The magnetic field is strong. You can tell exactly the right direction. Move forward 1 space.

You get an energy boost before the next waterfall leap. Move forward 3 spaces.

Save the Swimming Salmon

River Cards

There are lots of trout around.
Lay low to make sure none
catch you. Miss a turn.

A trout is chasing you but you
swim faster to avoid it. Move
forward 2 spaces.

You are at the biggest waterfall
in the river but you make it.
Move forward 1 space.

You can smell home. Move
forward 1 space.

You are at the biggest waterfall
in the river but you make it.
Move forward 1 space.

Your colour is looking the
best of all the fish. Keep
swimming so that you can
attract a mate. Move forward
2 spaces.



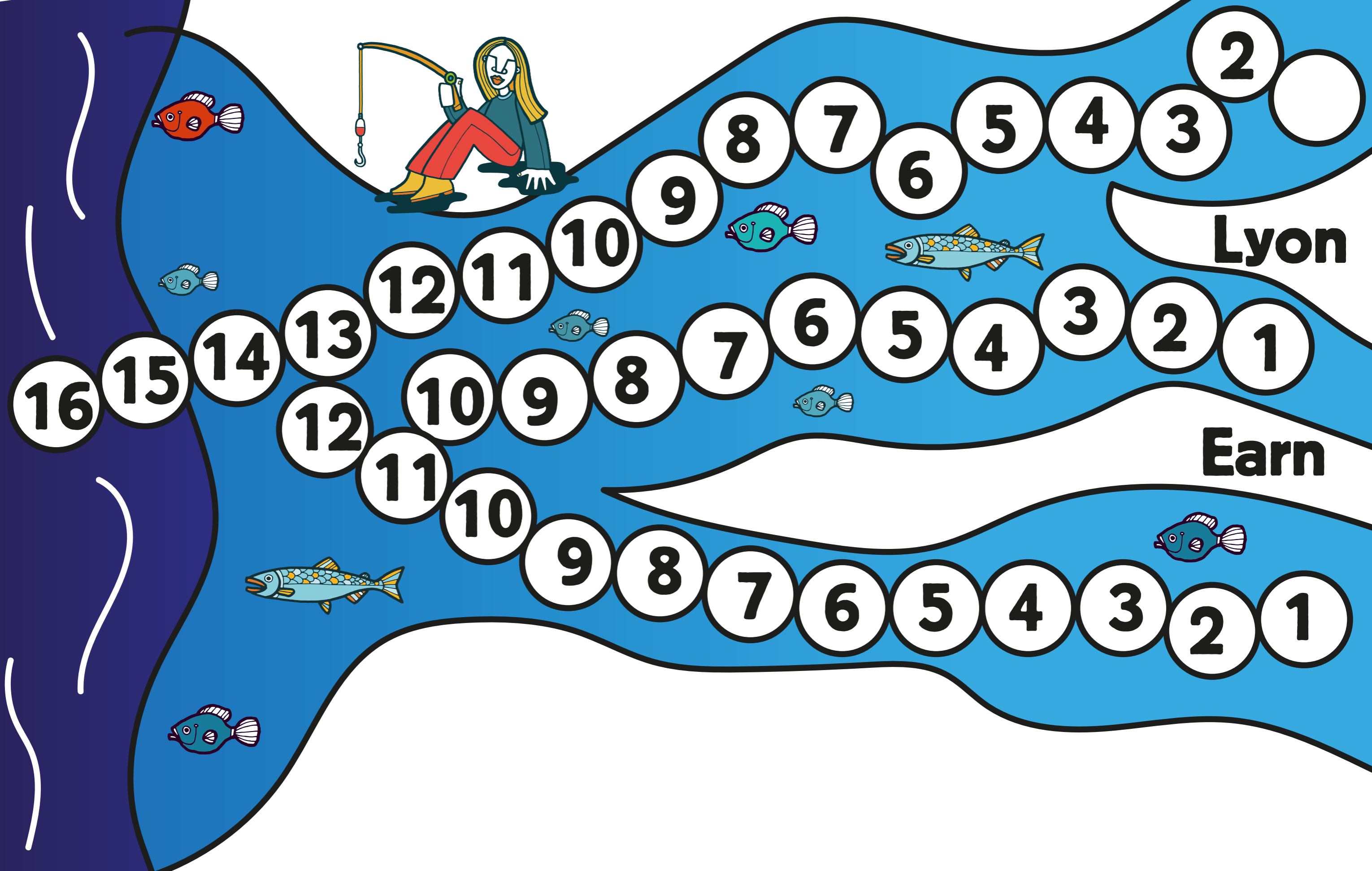
Save the Swimming Salmon

River Cards

Write some of your own!

River Tay

Tummel





GSF STEAMS Pack Kit List

Here's a list of everything you'll need to complete this whole activity pack:

- ♦ Printable materials included in the pack (see each activity)
- ♦ Colouring materials
- ♦ Scissors
- ♦ At least 2 players
- ♦ Tape measure
- ♦ Something to mark your spot if working alone
e.g. a rock
- ♦ Pen and pencil
- ♦ Paper
- ♦ Blue tack or paperclips
- ♦ Timer

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