

Lesson Plan

NEUROHEADWAY

Neuroscience Into Education

Logic/Reasoning Skills

Materials:

Art Straws.

Today we are going to learn about LOGIC SKILLS. These are also known as *Reasoning* skills. These are the skills which help us work out answers to puzzles, tests, even everyday problems. For example, you are going to make a cake. You know you had eggs in the kitchen, but when you go to get them, they are gone. Can you *deduce* what might have happened to the eggs? ie. Make an *assumption*? (Someone ate them, they broke) What is the logical thing to do now? (Go to the shop and buy some more) What problems might there *then* be which you must solve? (the shop is closed/you have no money left) and how can you resolve these?

ACTIVITY 1:

Around in Circles

Get into a circle and whoever starts is to think of a problem, like the egg one. Keep it simple. Start with one sentence. eg. I wanted to go on a bike ride, but my bike had a flat tyre...then the person next to you can give a solution, but then another problem to solve – eg. So, I found my bike pump and pumped it up. But then it started to rain...etc. Until everyone has had a go at solving a problem, then creating another one.

ACTIVITY 2:

The Tower

Now our brains are in well into problem solving mode, I want you to split into two teams. Each team is to have a pile of art straws. Using all your joint logic skills, I want each team to try and build the tallest tower which will stand unaided. It is not as easy as you think, and you will really need to get your heads together to work out the best way to do it. Each of you must use your strengths in problem solving and predict any new problems – such as 'it looks like it is starting to wobble' and resolve these problems before your tower falls. OK? Go!

Here are some reasoning/logical puzzles for students who prefer to work alone:

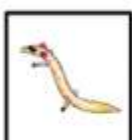
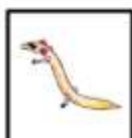
Name _____

Date _____



SALAMANDER LINE-UP PUZZLE 4

Place the 6 Captain Salamanders in the squares on the board so that no captain is in the same line (either horizontal, vertical or diagonal) as another.



How many ways can you do it?

Name _____

Date _____



SHARE THE TREASURE 1

Captain Salamander and his crew have found 20 bars of gold.

His three crew put the bars into 4 equal piles.

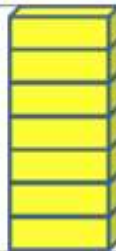
How many bars are in each pile?



But the Captain decides that everyone should have a different amount.

- The Captain should have the most bars.
- Bert should have 1 fewer bar than him.
- Barry should have the least bars.
- Bill should have 1 more bar than Barry.

Who should get which pile?

Name _____

Date _____



FIND THE 2 DIGITS! SHEET 1

Tyger Salamander has stolen 2 digits from the pack of digit cards.



He tells the other salamanders that he will give them back if they can guess what number he has made with them.

He tells them:

- My number is smaller than 20.
- My number is odd.

What 2 digit numbers could he have made?

See if you can find all the possibilities.

Name _____

Date _____

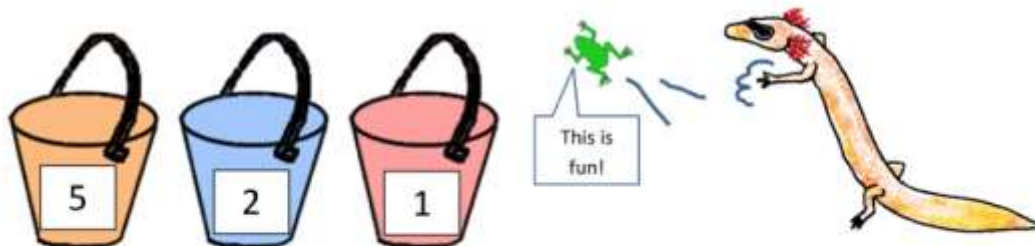


FROGS IN A BUCKET 1

Captain Salamander has been playing one of his favourite games called frog in a bucket with some of his friends.

In the game, you have to try to throw a bean bag frog into a bucket.

Each player gets 2 frogs to throw. You score either 5 points, 2 points, or 1 point for the bucket they land in.



Captain Salamander manages to get his 2 frogs into buckets.

How many points could he have scored?

There are 6 possibilities - how many can you find?

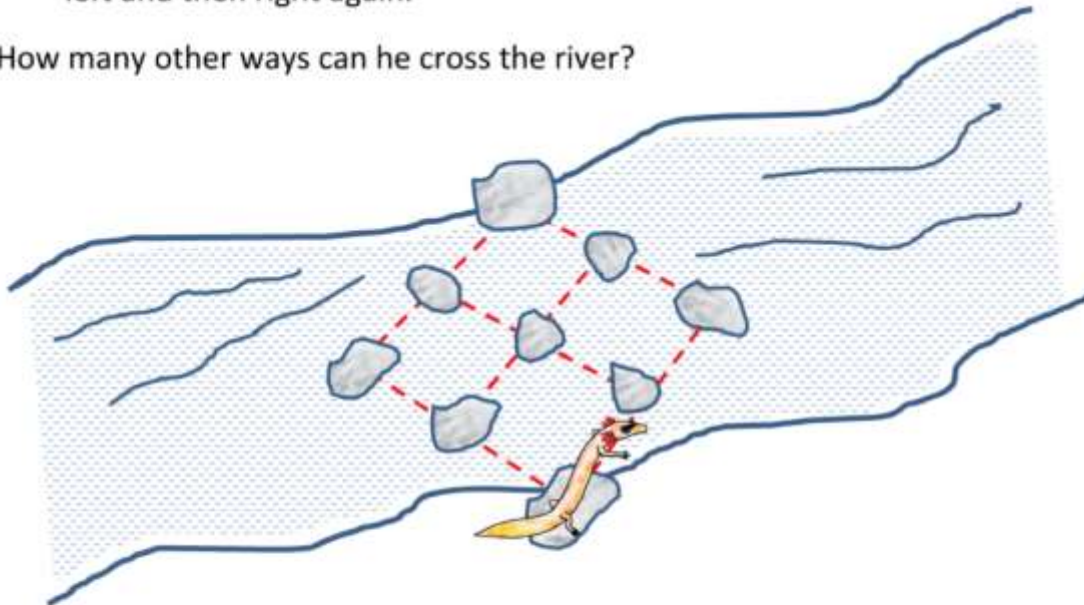
Example: He could have scored 7 points if his bean bags scored 5 points and 2 points.



STEPPING STONE PUZZLE

- Captain Salamander is trying to cross a river by jumping on some stepping stones.
- He is only allowed to jump forwards to the left, or forwards to the right.
- One way he could get across the river is to jump left, then right, then left and then right again.

How many other ways can he cross the river?



WHAT HAVE WE LEARNED TODAY?

- 1) In the Circle Game – was it easier to think of a problem...or a solution?
Why do you think that is?
- 2) Are problems easier to solve if they involve someone else, or not? Why do you think this?
- 3) How important is it to predict possible problems, without worrying about everything which might go wrong?
- 4) If your friend suggests a logical answer to a problem, but their logic is faulty, how would you approach it with them?
- 5) What are the benefits and problems of *assuming* things?