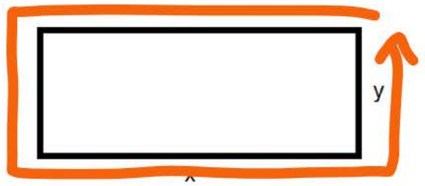
Mathematics

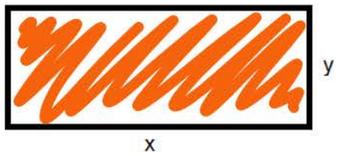
Calculate the area of rectangles

Yesterday you started looking at calculating the perimeter of rectangles.
Today we are looking at calculating the area of them as well.

Perimeter looks at the length going around the shape.



Area looks at the amount of space inside the shape.



In order to find the area of a rectangle , you need to multiply the length of the shape by the width of the shape.

So for example, on our rectangle, if x = 7 units and y = 3 units then all I need to do is multiply x and y together.

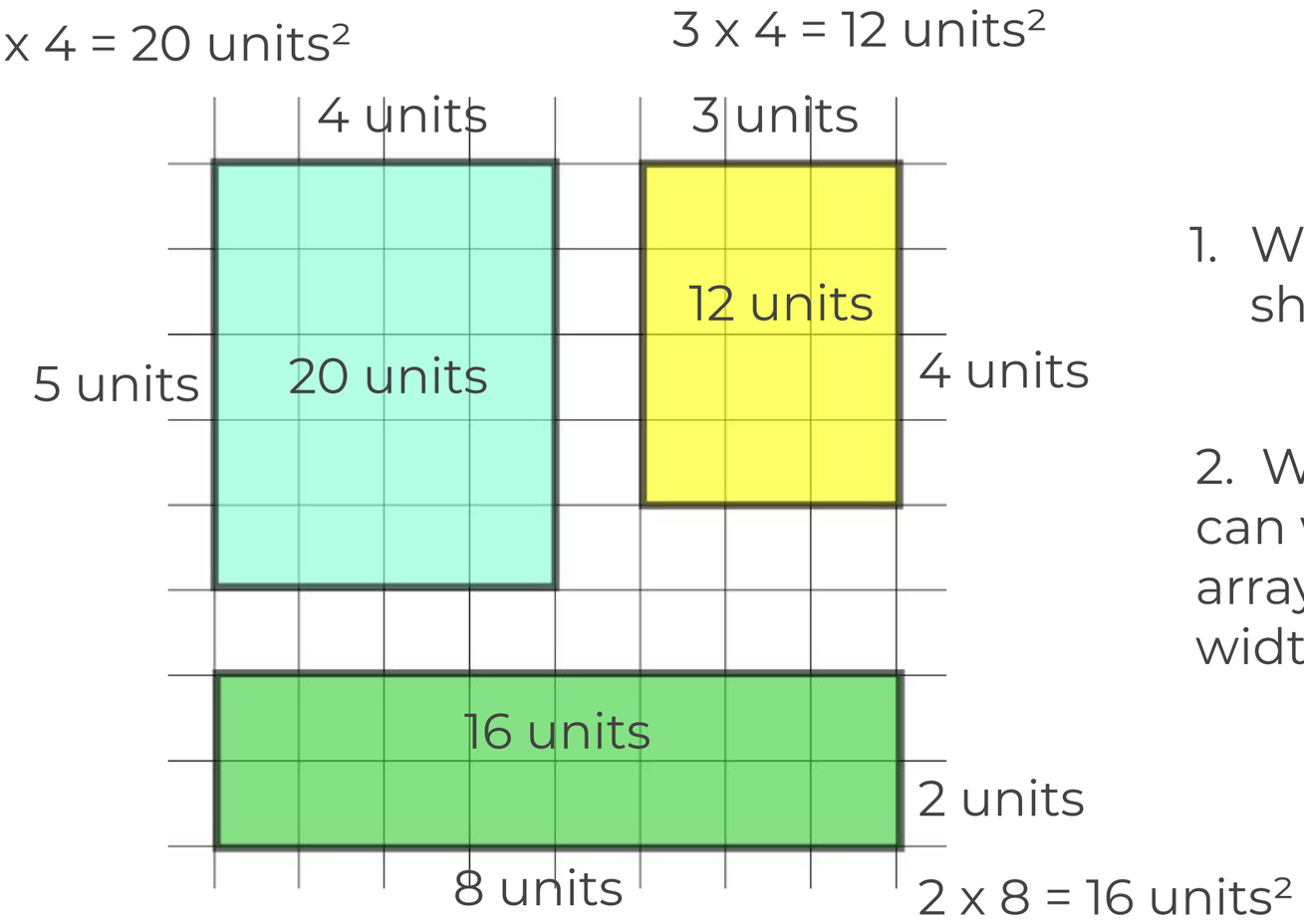
7 x 3 = 23 units^2

(we always need to add our squared symbol - The answer will not be counted as correct unless you add the squared symbol)

What is area? When is it used?

How is area different to perimeter?

How can we calculate the area of these rectangles?

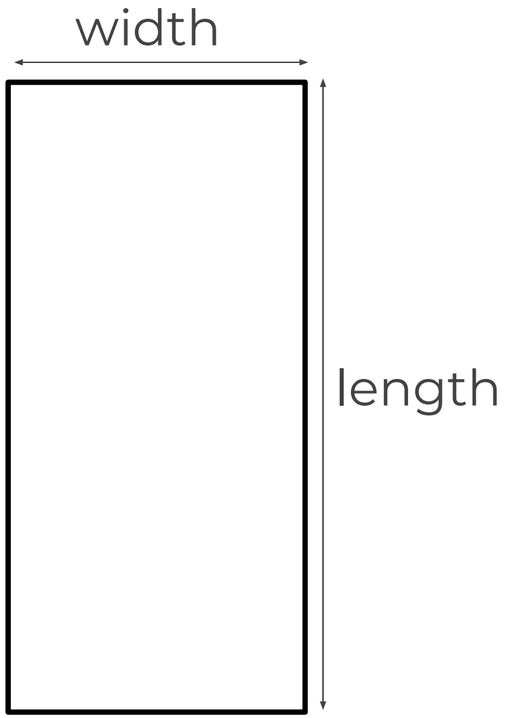


1. We could count the squares that the shape covers.

2. We could think of them as arrays and we can work out the number of squares in the array by multiplying the length by the width.

Can you apply our work on the previous slide to create a formula for the area of a rectangle?

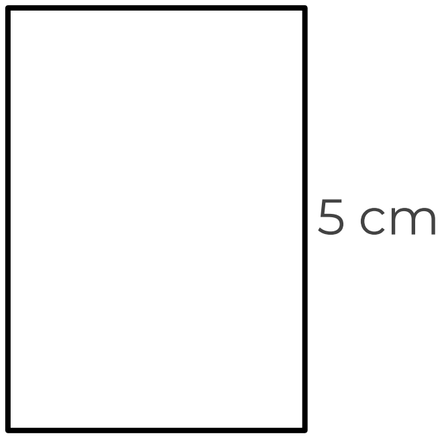
length x width = area

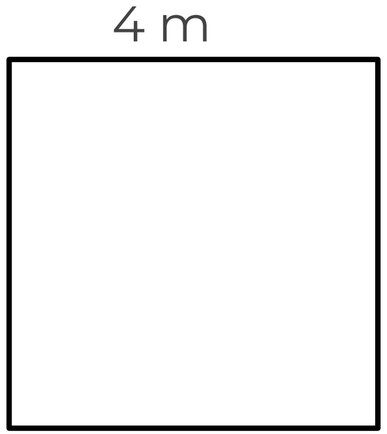


Calculate the area of the rectangles below

Remember to give your answer in units^2.

length x width = area

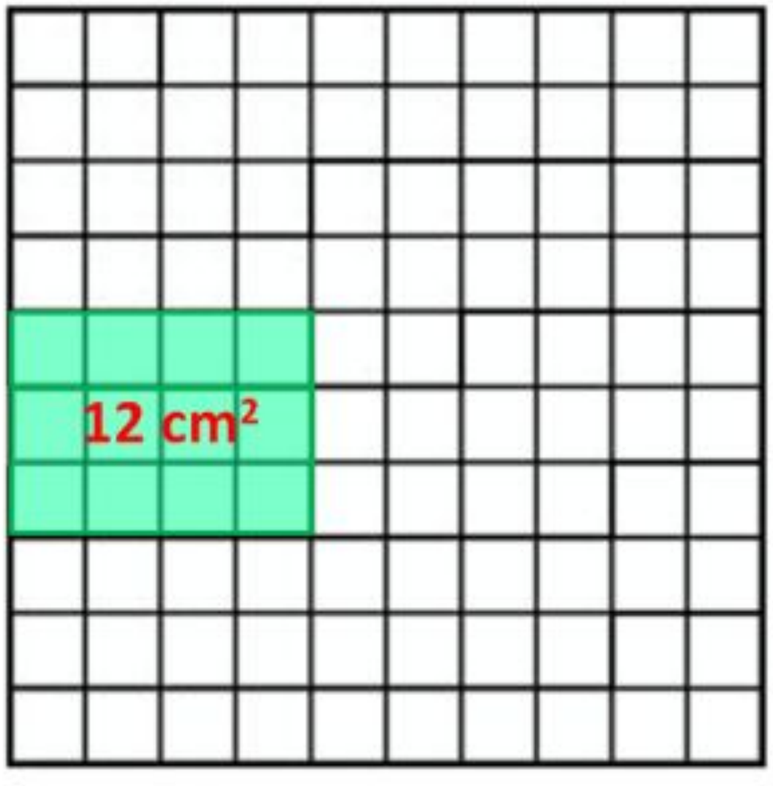




Example: 3 x 5 = 15 cm^2

Independent task

Calculate the perimeter of the compound shape.

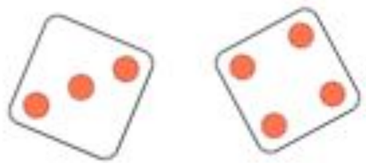


<u>Close to 100</u>

Roll a dice twice and draw a rectangle with side lengths matching the dice.
Record the area in cm^2
Keep going until you cannot fit a rectangle in for three rolls in a row.

At the end of the game work out the area of the grid that is filled and the area that is not filled.

EXAMPLE:



Source of all images : Mr Kelsall or Oak National Academy

Kensuke's Kingdom

By Michael Morpurgo

Chapter 6 – pg 91 - 98

Retrieval

1) What are the 3 rules Kensuke has made about living on the island (pg 92)?

_____
_____
_____

2) What did Kensuke do when he found Michael trying to create a new fire (pg 95)?

_____
_____
_____

3) Which animals came to watch Kensuke dismantle Michaels beacon (pg 95)?

_____
_____
_____

4) What happened when Michael started swimming in the ocean (pg 97)?

_____
_____
_____

Prediction

How do you think Michael is going to get out of the ocean? Will he survive the Jellyfish attack?

_____
_____
_____
_____
_____
_____
_____
_____
_____

Adventure Story Example

Forest Adventure

As the sun rose in the now azure sky, a misty haze began to form under the canopy of swaying, rugged trees. Curling around thick spiraling branches were constricting vines, which braced and creaked. Two brave explorers strode through the seemingly endless jungle, sweat running into their eyes. Dangling down from the layer of moss, vast, bold leaves flickered like flames in the growing bluster of wind.

Simon, the leader of the expedition, was a tall, muscular dark skinned man famous for finding hidden or lost artifacts. His dark, brown hair was tied back and his piercing green eyes constantly searched the jungle for danger. Originally from England, he had been raised in America by his parents Sam and Ella when they had moved there to find new employment. Simon's love of combat trousers and loose, cotton shirts was inspired by his father, a famous archaeologist who had worked in Egypt. As he grew older, Simon knew he would follow in his father's footsteps.

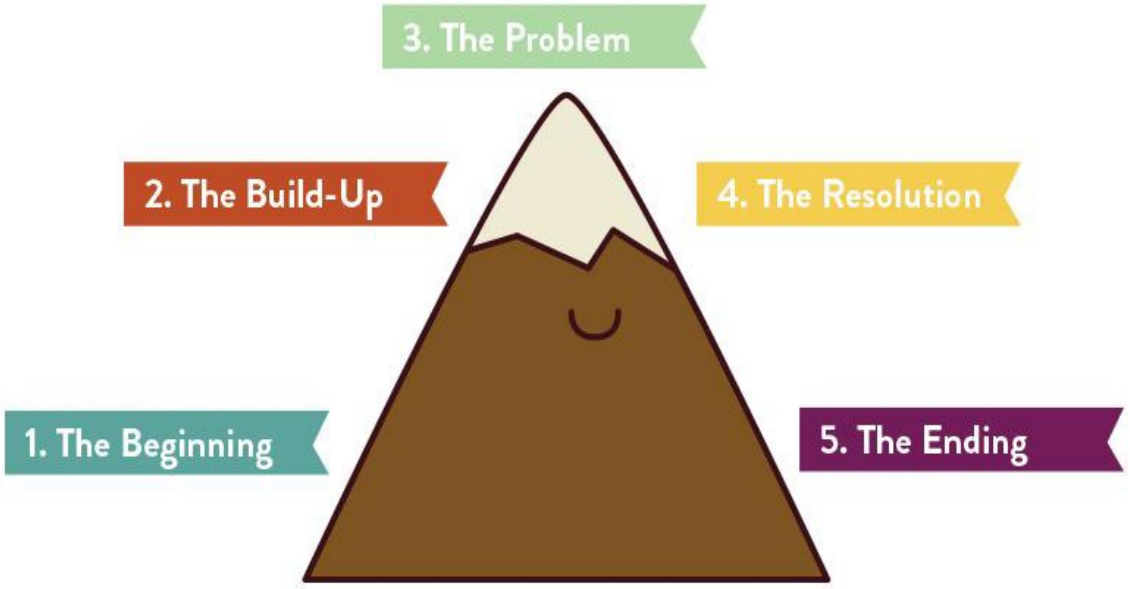
This place they were walking through was truly special but for the wrong reasons. Because, in the chaos of the natural surroundings, (where vines choked vines and branches beat down branches) he could feel the eyes of the forest fixed upon him! On top of this, there was a sense that something, good or bad, was going to happen very soon. Through a small gap in the flickering leaves, two dull, piercing eyes emerged followed by a gaping mouth full of teeth that jutted out like yellow pegs of evil! Before Simon had time to spin and flee, the jungle floor gave way underneath his feet!

As he landed onto the damp, saturated ground, he took a forward roll. Slowly he stood up and looked around him in the gloomy light. In the distance, through endless cobwebs, a soft glow caught his eye. Could it be gold? Slowly and carefully he set off, brushing aside the cobwebs sending spiders scuttling away. Soon he saw the object causing the gleam – a golden skull! He carefully picked up the artifact and placed it in his leather bag. Back in the jungle Bert, Simon's friend wandered around calling his friend's name loudly. Where could he be?

Simon carefully walked back along the dark tunnel excited with his find. As he walked closer to the pool of light caused by the hole on the jungle floor, he could hear his friend's calling.
'Down here!' he shouted up at his friend. Suddenly the light dimmed as his friend's head blocked out the light.

'Hold onto the rope and I will pull you up,' Bert called down.
As Simon grabbed hold of the rope he heard the click, click of sharp claws and the deep rumble of a growl from behind him. Quickly Bert pulled strongly on the rope. With a frustrated growl and a swish of its black tail, the beast retreated back into the depths of the tunnel in which it belonged.

Story Mountain



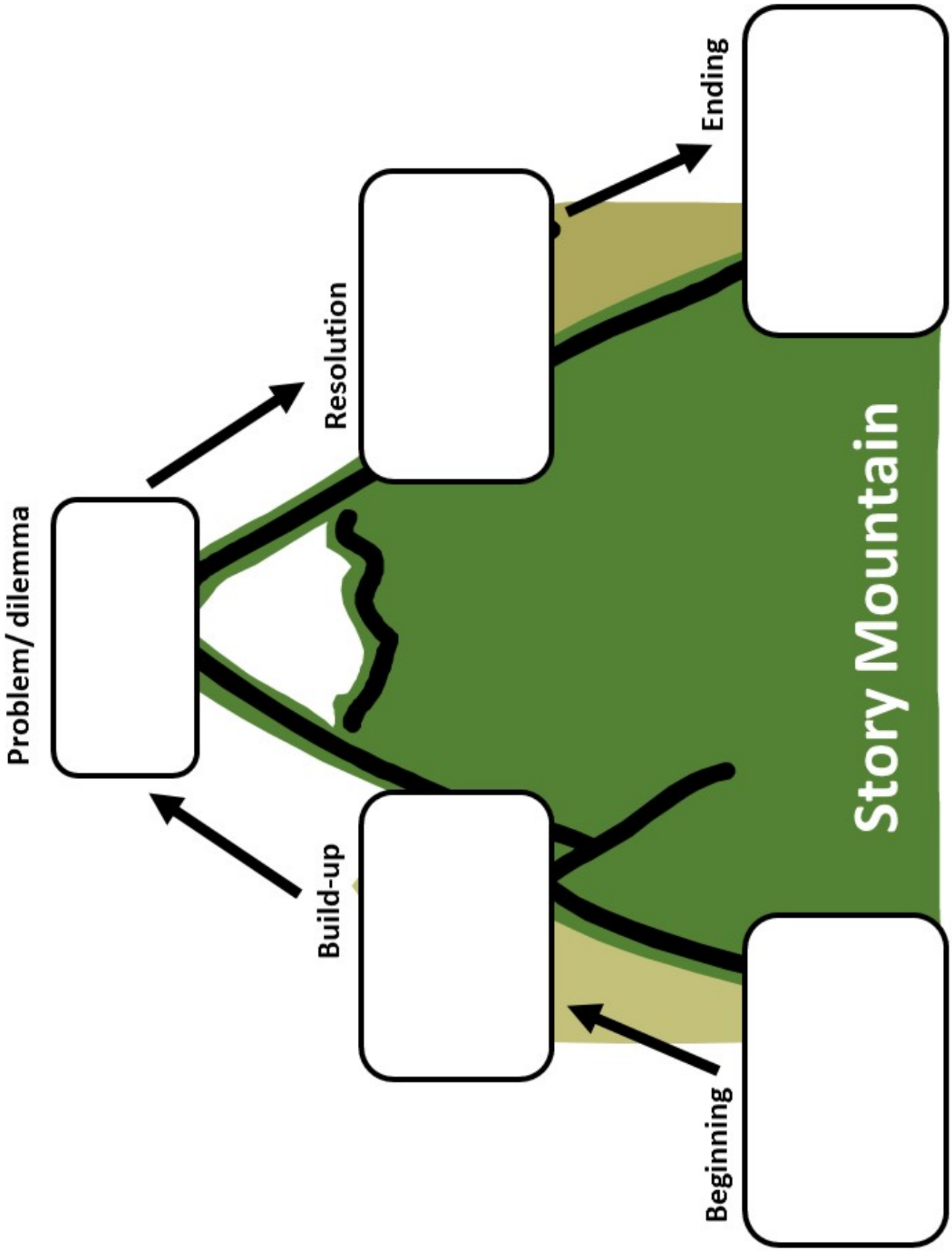
A story mountain is a useful tool writers use when planning. When writing an adventure story use this template to help plan out your sequence of events and the build up of drama!

Using the example adventure story, fill out the table below to summarise the different parts of the story.

The Beginning Where are we? Who are the main characters?	
The Build-Up What has happened to cause an adventure? Where do you need to go and why?	
The Problem What has gone wrong? Has it caused danger to our hero? Will the hero survive and complete the adventure?	
The Resolution How has the Hero solved the issue? How did they complete their journey?	
The Ending Will there be another journey? Did they return home safely?	

Now its your turn!

Start planning your own adventure story using the story mountain! (if you are unsure, watch the DB video where we work together to plan an adventure story using a story mountain.



Dissolving

Knowledge Quiz

1. When salt dissolves in water, what do we call salt?

Solution	Solvent	Solute	Dissolver

2. When salt dissolves in water, what do we call water?

Solution	Solvent	Solute	Dissolver

3. If we add more solute, we say the solution is more:

Diluted	Concentrated	Salty	Sugary

4. If we add more solvent, we say the solution is more:

Diluted	Concentrated	Salty	Sugary

5. What is separating salt from water through evaporation and condensation called?

Solution	Dilution	Concentration	Distillation

What happens when you add more solute?

You may remember that when more solute is added to a solution, we say the solution is more concentrated. There is a limited amount of solute that can be added before it stops dissolving. At this point, we say the solution is **saturated**. For example, if we keep adding salt or sugar to water, there is a point when the solute will stop dissolving. This amount can vary depending on the temperature of the solvent and pressure of the solution.

Hypothesis – an educated guess, based off facts and data.

When scientists do experiments, they will always make a hypothesis. This is a guess or prediction for what they think is going to be the outcome of their experiment. Using the facts below to write a hypothesis for the experiments below.

When making a hot chocolate, the more of the chocolate powder you put in, the thicker and more concentrated the mixture becomes. The more water you use, the weaker the chocolate flavour becomes. The chocolate powder dissolves quicker when you put it in hot water. If you put cold water in, the chocolate powder will not dissolve as well.

Experiment – Making hot chocolate	Hypothesis – what do you think will happen?
Use more chocolate powder than water.	
Use more water than chocolate powder.	
Use cold water to dissolve the chocolate powder.	
Use hot water to dissolve the chocolate powder.	

When conducting an experiment, you are changing something each time you redo it. The things that are changed are known as Variables.

How to separate mixtures?

Some materials do not dissolve in a solvent; they are **insoluble**. For example, sand, when mixed with water, will not dissolve but will gradually settle into a sediment at the bottom of the water. Oil will also not dissolve in water, but will settle into a separate layer of oil on top of the water.

Filtration

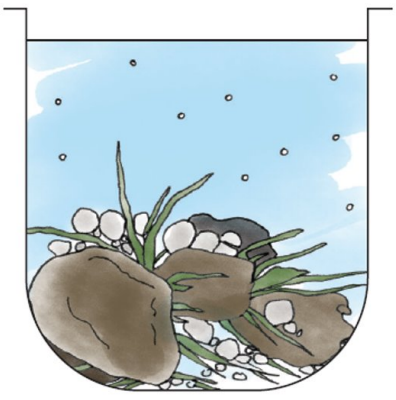
We can separate solids from a mixture using a process called **filtration**. Here, the mixture (called the **filtrate**) is passed through a filter. The solid particles cannot pass through the filter, but the liquid particles can.

Sieving

If the solid particles are a mixture of different sizes, there may be further steps to separate the mixture. Solid particles of different sizes can be separated by a process called **sieving**. Here, the mixture is passed through a **sieve**. The size of holes in the sieve will be chosen based on the size of the particles to be separated

1) What is the process of filtration?

2) What is the process of sieving?



3) Which process would you use to separate this mixture? Why?

Stereotypes

What are stereotypes?

Stereotypes are ideas or beliefs about how people will act, based on the group to which they belong. These stereotypes are very often untrue and can be used by people as a way of discriminating against someone or something.

A common stereotype are the stereotypes that come with being a girl or a boy.

Below are some common stereotypes associated with being a boy or a girl;

Boy	Girl
Blue	Pink
Bikes	Dolls
football	Ballet

Take a look at the image below and compare the difference between the 2 sides of the picture.

1) Which toys are being advertised as 'girl toys'?

_____

_____

_____

2) Which toys are being advertised at 'boy toys'?

_____

_____

_____

3) What colours have been used to advertise to the girls?

_____

4) What colours have been used to advertise to the boys?

_____

5) Why do you think this has been done?

_____

_____

_____

_____

Choosing Birthday Presents

Below there is a table with a description of people you are buying gifts for. You must write down what you would get this child as a gift and why.

Name	Age	Gender	Birthday buy	Reason for this choice
Polly	5	Girl		
Arjun	6	Boy		
Adaego	8	Girl		
Oliver	10	Boy		

How many of your gift ideas were based on what you think boys and girls like?

_____

Next PSHE lesson, we will be discussing why these stereotypes can be harmful and how to challenge them.