



Examples of Work Melissa

Properties and changes of materials - Year 5









Focus of assessment (National Curriculum statements)

• Compare and group materials together, according to whether they are solids, liquids or gases. (Year 4 – States of matter)

Description of activity

The pupils were given some raisins to handle and then shown a bottle of lemonade and asked to think what might happen when the raisins are added to the lemonade.

	EVIDENCE OF LEARNING	ASSESSMENT
Oral evidence	Examples of work	Knowledge
	I predict that the raisins are going to I predict that the surface. I predict this Float to the surface. I predict this because lemonade have gas so maybe the gas is going to push the raisins up to surface.	Melissa uses the word 'gas' in her prediction.
Teacher observations	es siste services of gos	Working scientifically
	rousing	



Focus of assessment (National Curriculum statements)

• Compare and group materials together, according to whether they are solids, liquids or gases. (Year 4 – States of matter)

Description of activity

The pupils made close observations of adding raisins to lemonade.

	EVIDENCE OF LEARNING	
Oral evidence	Examples of work	Knowledge
Teacher observations	First 1 observe that some of raisins going up and down quickly when sarah pours the lemonade. Next the raisins was slowly floating up when they have lots of bubbles. After a few second they started to go up	Working scientifically Melissa has made a close observation and has noticed the effect the bubbles have on how quickly the raisins float.
	and down really Slow.	



Focus of assessment (National Curriculum statements)

- Compare and group materials together, according to whether they are solids, liquids or gases. (Year 4 States of matter)
- Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.

Description of activity

The pupils were given the key words for the topic on cards. They sorted these with their partner into words they had heard before and new words. Starting with the words they felt most familiar with, they were asked to write definitions for each word.

EVIDENCE OF LEARNING		Assessment
Oral evidence	Examples of work	Knowledge
Teacher observations	Solid: Particules of any solid is pack together. Solid: Particules of any solid like an ice Also solid could be a liquid like an ice cube can be melted as water (Liquid). Liquid: The particules of any liquid is kind of apart and pack. liquid can be a solid. Gas: The particules of gas are spread apart. Dissolve: Material: A material is like something that you can made anything with It just kind of.	Melissa is familiar with the words 'dissolve' and 'melt', but is struggling to write clear definitions for these words. Working scientifically
	Meltings: When a solid melt!!	



Year 5 Topic

Properties and changes of materials

Focus of assessment (National Curriculum statements)

Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.

Description of activity

The pupils were asked to add some salt to water and observe it closely. During the discussion that followed, the teacher ensured that the pupils understood that the salt had not disappeared but had dissolved and was still in the cup. She also explained that the salt and water had now become a solution.

	EVIDENCE OF LEARNING	
Oral evidence	Examples of work	Knowledge
	While the salt was poured into the cup of water, I observed that some of the salt dissolve imediately and the others stay at the bottom. But some of them slowly dissolving. So this is made as salt and water solution	Melissa shows an awareness that a solid can dissolve in water. She has used the word 'solution' in her explanation. This is not sufficient evidence to show that she is secure with the concept of dissolving yet.
Teacher observations		Working scientifically
	Sugar an	Melissa makes good observations and includes the words 'dissolve' and 'solution' in her description.
	salt salt	



Topic

Properties and changes of materials

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Description of activity

The pupils could select solids of their choice from a range provided. They were then asked to add them to water and make careful observations, choosing how to record these observations.

EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
Teacher: "Why have you said they partly dissolved?"	Solid obervations 5	Melissa is not familiar with suspensions at present which is causing her confusion.
Melissa: "Because there was less at the bottom than what I put it in, so some must have dissolved."	Flour kind of change colour.	Partly
	Corn- Kind of Change colour (in se)	Partly
Teacher observations	Conscous Kinda change	Working scientifically
	broate or	Melissa chose to draw a table to record her observations. She independently added a column to indicate whether the solid dissolved
	Yeast kind of change colour	Partly or not.
	- Yeast	



Topic

Properties and changes of materials

Focus of assessment (National Curriculum statements)

• Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.

Description of activity

The pupils were given two cups of flour in water and asked to stir them both up. They made close observations. One they continued to stir and the other they left. They continued to make observations. The teacher then introduced the word 'suspension' and explained that the solid has not dissolved.

ASSESSMENT EVIDENCE OF LEARNING Oral evidence Examples of work Knowledge Melissa: "When you stir it, all the Melissa is now clear about the little bits of flour float around in the difference between a solution and a liquid and make it look more white. suspension. "When you stop stirring, you can see them falling to the bottom and the water gets clearer. You can see some bits of flour stuck to the side of the cups." Teacher: "What do you think about the cornflour now?" Melissa: "It was like the flour. It did not dissolve to make a solution but made a suspension." Teacher observations Working scientifically



Year 5 Topic

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Description of activity

The pupils were asked to discuss in small groups and write down what they could change that may affect the speed of sugar dissolving. Using these ideas and the fair test planning board, each group chose their own investigation. Melissa's group chose to investigate how the type of container affected the rate of dissolving. Each group was then given time to complete their chosen investigation and asked to interpret their results.

	EVIDENCE OF LEARNING	
Oral evidence	Examples of work	Knowledge
"We put the same amount of water and sugar in each container and waited to see which dissolved first. Not all the sugar dissolved in any of them, so we tried stirring. This helped the sugar to dissolve more quickly. We couldn't stir the cylinder 'cos the spoon didn't fit, so we moved it about. That helped a bit but not as good as stirring. I think the stirring made more difference than the container."	What happens is I change the container when dissolving	Melissa talks confidently about the sugar dissolving and understands that there are variables that affect the rate of dissolving.
Teacher observations		Working scientifically
		Melissa carries out the investigation controlling variables appropriately, before going on to explore the effect of stirring.



Topic

Properties and changes of materials

Focus of assessment (National Curriculum statements)

• Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.

Description of activity

The pupils placed sugar coated sweets into shallow water and observed the change over time.

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	EVIDENCE OF LEARNING	ASSESSMENT
Oral evidence	Examples of work	Knowledge
"The colour from the sweets spreads out into the water. The chocolate is covered in a shell made of coloured sugar. This dissolves in the water to form a solution. When you turn the sweet over, it looks like an eye. There is a bit of the outside left as it was on the bottom of the tray and the water couldn't get to it to dissolve it." Teacher observations		Melissa applies her understanding of dissolving to this new situation and explains it using the expected key vocabulary. Working scientifically Melissa communicates detailed observations orally and uses correct scientific language to describe what is happening.



Focus of assessment (National Curriculum statements)

- Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.

Description of activity

The pupils were shown how to filter by folding the paper correctly, placing it in the funnel and carefully pouring water through it so that it did not go over the sides of the filter paper. They were then asked to make a mixture of three different solids in water and to see what happened when they filtered these.

EVIDENCE OF LEARNING		Assessment
Oral evidence	Examples of work	Knowledge
Teacher observations In the first observation, there is an incorrect use of the word 'evaporate'.	giller paper The book us a little bit more than 30 seconds to do everything. He observe that It evaporate and easly seperate from the filter paper from the water. 2) Final Paper Powker Powker Powker Our second observation, it took longer because the flour was blocking the end so that why it was longer and slow. But he manage to do it.	Working scientifically



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EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
Teacher observations	Jentils Jen	Melissa successfully separates the solids from the mixture by filtering, but does not use the term 'filter' as part of her observations. Working scientifically Melissa makes careful observations and suggests reasons for the differences.



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Description of activity

The teacher first recapped on their prior learning about evaporation in Year 4. Then the pupils were given a sugar solution and asked to think about what variables affect the speed of evaporation. They were then asked to make a prediction for one of these variables using their understanding of evaporation.

	EVIDENCE OF LEARNING	ASSESSMENT
Oral evidence	Examples of work	Knowledge
Teacher observations Melissa's group chose to put the same amount of the solution into different types of containers.	Prediction: Beaker Beaker Sugar Sugar Solution Prediction Prediction	This shows that she has the required knowledge about evaporation from Year 4 and is able to apply this to separating mixtures. Working scientifically Melissa decides how to carry out the investigation and makes a prediction based on her prior knowledge.
	because the surface area is bigger and the heat can quickly evaporate because it because of the surface area.	



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- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.

Description of activity

The pupils were given a mixture of pasta shells, paperclips, chickpeas, lentils and salt in water and a range of equipment to use. They were asked to plan how they would separate the mixture.

EVIDENCE OF LEARNING		ASSESSMENT
Oral evidence	Examples of work	Knowledge
Teacher observations The first paragraph shows a possible misconception that all metals are magnetic.	First, I'll take out the paper dip with the magnet because they are magnetic also the paper-dip is metal thats why thus are magnetic. Next I'll take out the pasto shells with the fork because it's really easy to take out and it is a big solids. After I will take out the dried chickenpeas with a sieve because the dried dickenpeas are kind of big and it a solid. Next I will take out the red lentils with the gunnel and the filter paper because I'm gung to put it in the funnel into the filter paper After the red lentils I am going to evaporate the water so it is seperate from the salt because there's no equipment left.	Melissa uses her knowledge to successfully separate the given mixture and explains her method using all the expected vocabulary correctly. Working scientifically



Year 5 Topic Properties and changes of

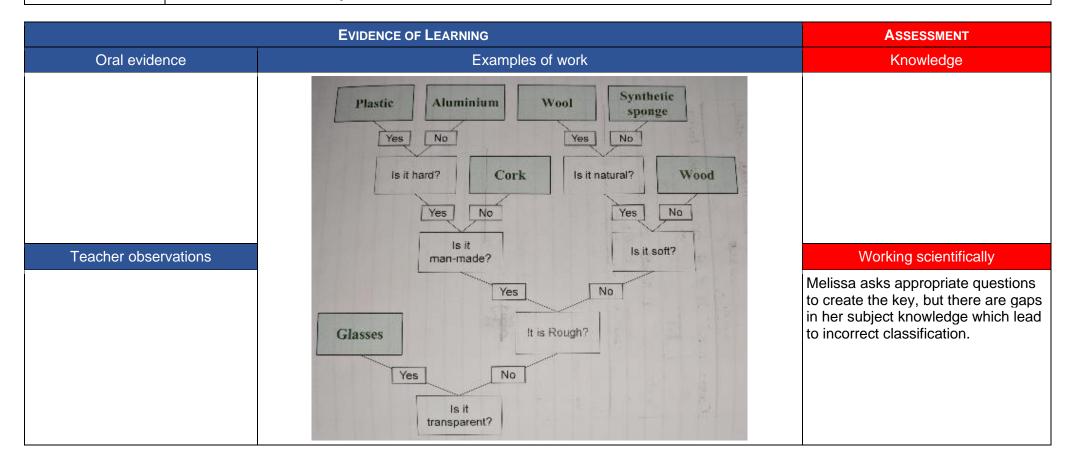
Focus of assessment (National Curriculum statements)

materials

- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.
- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.

Description of activity

The pupils were given objects made of different materials and asked to design a classification key to separate them focusing on the material rather than the object.





Focus of assessment (National Curriculum statements)

- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets

Description of activity

The pupils were asked to set up an investigation to explore how ice melted in different types of cups.

	EVIDENCE OF LEARNING	ASSESSMENT
Oral evidence	Examples of work	Knowledge
	I predict that plastic cup will melting the slowest. I think because it depends on the material. mething the material. mething the material cup ice of the material.	Melissa is familiar with the use of thermal cups to keep drinks warm and applies this knowledge correctly when predicting the speed at which the ice will melt.
Teacher observations	I predict that the thermal cup will melt the ice the quickest. I think	Working scientifically
	because the thermal cup is to keep the drink warm	Melissa's group planned their comparative test. They chose to use three different cups into which they put one ice cube and added warm water.



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Description of activity

After making their predictions, the pupils set up the investigation. Other groups had not put water in the cups, only the ice cubes. For these groups, the ice melted more slowly in the thermal cup. The pupils were asked to think why the results were different.

EVIDENCE OF LEARNING								ASSESSMENT
Oral evidence "The ice did melt quickest in the thermal cup because it kept the water warmer.			Knowledge					
	O min	2 nin	H min =	6 min	8 min	10 min	12 min	Melissa shows a good understanding of thermal insulators.
"The thermal cup kept our water warm, so the ice melted more quickly, but it kept their ice cube cold, so it melted more slowly."	polysigien - 14°C	40	3°c	q°c	4%	3℃	1%	
Teacher observations	FIRENCE 5 OC	7°C	-5°c	3%	900	7°c	5°c	Working scientifically
	thermal 18°C	12%	- 9°c	900	10%	10°c	1100	They decided to record the temperature in each cup every two minutes and observe how long the ice took to melt.
							9	



Focus of assessment (National Curriculum statements)

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- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.

Description of activity

The pupils were given some objects to explore and identify the materials they were made from and consider why these materials were chosen.

	ASSESSMENT	
Oral evidence	Examples of work	Knowledge
Teacher observations	Ge.12.17 fo: I can explain scientific ideas. This is also a electric insulator to keep everyone safe (200) It's iron (200) Lecause it because it's a electric insulator conduct	This shows a good understanding of electrical conduction and insulation. Working scientifically



Focus of assessment (National Curriculum statements)

- Demonstrate that dissolving, mixing and changes of state are reversible changes.
- Explain that some changes result in the formation of new materials and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Description of activity

The pupils were given a white powder (bicarbonate of soda) and asked to observe what happens when it was added to different liquids. The teacher then explained that the solid is reacting with the liquid to create a new material – the gas. The pupils then observed a fizzy tablet in water and the teacher demonstrated using this reaction to launch a cannister.

	Assessment		
Oral evidence	Examples of work	Knowledge	
"The tablet reacts with the water to make a gas. When there is too much gas to fit in the pot, the lid flies off." Teacher observations	Materials observation of materials aissolve? Vinegar Got Gas / Bubbly a Partly Little Water Bubbly, turns colour Partly lemonade Bubbly and it's like (bubbly) a volcano dissolve	Melissa chose to note whether the powder dissolved or not, showing recollection of her prior knowledge. Melissa applies her knowledge of a chemical reaction to this new situation. Working scientifically Melissa records her observations in a table.	



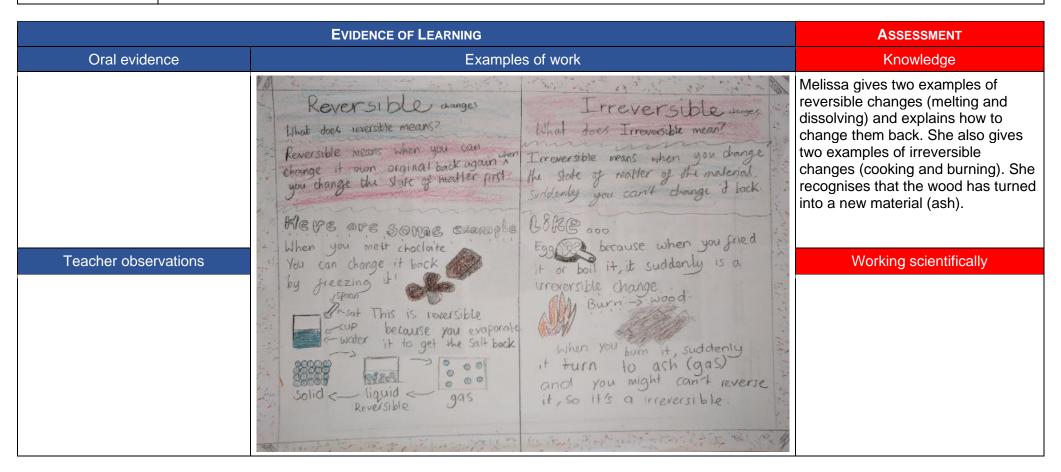
Topic Properties and changes of materials

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Description of activity

The pupils were given time to research reversible and irreversible changes using the internet and then to present their understanding.





Overall summary

Secure

Melissa talks about the properties of the materials used for different objects based on her prior knowledge and testing, explaining why a material is suitable for a particular purpose. She sorts materials using a range of criteria. She understands that some solids dissolve in water to form a solution. She has carried out investigations into the rate of dissolving and can relate her results to her understanding. She separates mixtures using a range of techniques. She explains which changes are reversible and which are not reversible.