

Name:

Date:

Science Assessment Year 5: Changes of Material

Properties of Materials

1. Name **two** natural materials:

and

2. Write the meaning of these properties of materials:

a) permeable

.....

b) flexible

.....

c) absorbent

.....

3. Name **two** properties of each of these materials which make them good for these jobs:

a) Nylon fabric used for an umbrella:

.....

b) Glass used for a greenhouse:

.....

c) Plastic used for making electrical plugs:

.....

4. Tick all the materials that will dissolve in water:

salt	<input type="checkbox"/>	pepper	<input type="checkbox"/>	sugar	<input type="checkbox"/>	cooking oil	<input type="checkbox"/>
tea leaves	<input type="checkbox"/>	instant coffee	<input type="checkbox"/>	jelly crystals	<input type="checkbox"/>	sand	<input type="checkbox"/>

1 mark

2 marks

3 marks

2 marks

total for this page

5. What is the correct scientific word for:

a) Describing something that does not dissolve in water?

.....

b) Water or another liquid with something dissolved into it?

.....

2 marks

6. Name **two** things that would make a solid dissolve quicker in water:

and

1 mark

Separating

7. I have a mixture of salty water, fine sand and gravel. If I didn't want to keep the water at the end, what **three** steps would I take to separate them and in what order? Fill in this table to show what you would do:

	What process would I carry out?	What special equipment would I need?	What would this remove?
1 st step			
2 nd step			
3 rd step			

3 marks

8. Tick all the changes below that are irreversible:

Frying an egg	<input type="checkbox"/>	Melting chocolate	<input type="checkbox"/>	Dissolving salt in water	<input type="checkbox"/>	Making bread into toast	<input type="checkbox"/>
Freezing water to make ice	<input type="checkbox"/>	Mixing vinegar and bicarbonate of soda	<input type="checkbox"/>	Burning wood	<input type="checkbox"/>	Water turning into steam	<input type="checkbox"/>

2 marks

total for this page

Keeping Warm Investigation

A group of children wanted to design a container to keep a jacket potato warm. They needed to test which material would be the best insulator.

They decided to wrap warm jacket potatoes in different materials to see which kept the potato the warmest for the longest time.

9. Which variable will be kept the same?

.....

10. Which variable will change?

.....

11. What safety issue would the children need to consider?

.....

12. Why did the group decide to test a potato with nothing wrapped round it?

.....

Here are the results of the investigation:

	Oven temperature	Temperature after 20 minutes	Potato temperature after 40 minutes	
Potato wrapped in nothing	200°C	85°C	54°C	55°C
Potato wrapped in tin foil	200°C	91°C	82°C	71°C
Potato wrapped in newspaper	200°C	92°C	84°C	76°C
Potato wrapped in cotton wool	200°C	96°C	92°C	88°C

.....

total for this page

13. Look at the table and decide:

a) What should the title of the last column be?

.....

b) Which result looks like an anomaly?

.....

c) What would your prediction be for the potato wrapped in cotton wool after 80 minutes?

.....

14. Which material would you use to wrap the jacket potato and why?

.....

.....

.....

3 marks

1 mark

.....

END OF TEST

total for this page

question	answer	marks	notes																
1. Name two natural materials.																			
	<ul style="list-style-type: none"> • Wood • Stone • Cotton • Soil • oil • Any natural metals 	1																	
2. Write the meanings of these properties of materials.																			
a	Lets gas and/or liquid through	2	0 marks for 1 correct 1 mark for 2 correct 2 marks for all three correct Do not allow any answer that is an example of the property. For example: absorbent is 'like a sponge'. This does not tell us what absorbent is. b. do not allow: bends into a shape.																
b	Easily bends																		
c	Soaks up water/liquid																		
3. Name two properties of each of these materials which make them good for these jobs.																			
a	<ul style="list-style-type: none"> • Flexible • Waterproof • Easily coloured/printed onto 	1	1 mark for 2 correct.																
b	<ul style="list-style-type: none"> • Transparent • Strong • Long lasting 	1	1 mark for 2 correct.																
c	<ul style="list-style-type: none"> • Insulator/does not conduct electricity • Hard wearing • mouldable 	1	1 mark for 2 correct.																
4. Tick all the materials that will dissolve in water.																			
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">salt</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;">pepper</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">sugar</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;">cooking oil</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td style="text-align: center;">tea leaves</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">instant coffee</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;">jelly crystals</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;">sand</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	salt	<input checked="" type="checkbox"/>	pepper	<input type="checkbox"/>	sugar	<input checked="" type="checkbox"/>	cooking oil	<input type="checkbox"/>	tea leaves	<input type="checkbox"/>	instant coffee	<input checked="" type="checkbox"/>	jelly crystals	<input checked="" type="checkbox"/>	sand	<input type="checkbox"/>	2	0 marks for 0-2 correct 1 mark for 3-7 2 marks for all 8 All the substances that dissolve must be denoted by a tick or other obvious method e.g. circled. The substances that do not dissolve may be left blank or crossed.
salt	<input checked="" type="checkbox"/>	pepper	<input type="checkbox"/>	sugar	<input checked="" type="checkbox"/>	cooking oil	<input type="checkbox"/>												
tea leaves	<input type="checkbox"/>	instant coffee	<input checked="" type="checkbox"/>	jelly crystals	<input checked="" type="checkbox"/>	sand	<input type="checkbox"/>												
5. What is the correct scientific word for:																			
a	insoluble	1																	
b	solution	1																	

question	answer	marks	notes																
6. Name two things that would make a solid dissolve quicker in water.																			
	<ul style="list-style-type: none"> • add more heat • stir it more quickly/for longer • make the solid into smaller particles 	1	1 mark for 2 correct.																
7. Fill in this table to show what you would do.																			
	<table border="1"> <thead> <tr> <th></th> <th>What process would I carry out?</th> <th>What special equipment would I need?</th> <th>What would this remove?</th> </tr> </thead> <tbody> <tr> <td>1st Step</td> <td>Sieving</td> <td>A sieve</td> <td>Gravel</td> </tr> <tr> <td>2nd step</td> <td>Filtering</td> <td>Filter paper (and cone)</td> <td>Sand</td> </tr> <tr> <td>3rd step</td> <td>Evaporation</td> <td>Shallow dish (warmth)</td> <td>Water</td> </tr> </tbody> </table>		What process would I carry out?	What special equipment would I need?	What would this remove?	1 st Step	Sieving	A sieve	Gravel	2 nd step	Filtering	Filter paper (and cone)	Sand	3 rd step	Evaporation	Shallow dish (warmth)	Water	3	<p>1 mark for each row completed in full. The three steps must be in this order (largest to smallest particles)</p> <p>No mark for using 'smaller sieve' for 2nd step.</p>
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9. Which variable will be kept the same?																			
	The temperature of the oven	1																	
10. What is the dependent variable in this investigation?																			
	The temperature of the potato	1																	
11. What safety issue would the children need to consider?																			
	<p>Possible answer:</p> <ul style="list-style-type: none"> • They would need to use oven gloves to carry the potato • The potato would be very hot at the start of the investigation • The potato could burn you if you picked it up at the start 	1	1 mark for answers that include the heat of the jacket potato could cause injury.																

question	answer	marks	notes
12. Why did the group decide to test a potato with nothing wrapped round it?			
	<ul style="list-style-type: none"> As a control To compare with the other results 	1	1 mark for a correct answer.
13. Look at the table and decide:			
a	1 mark for: <ul style="list-style-type: none"> Temperature after 60 minutes/1 hour 	1	Accept answers with no °C
b	1 mark for: <ul style="list-style-type: none"> 54°C 	1	
c	1 mark for an answer in the region: <ul style="list-style-type: none"> 85°C - 82°C 	1	
14. Which material would you use to wrap the jacket potato and why?			
	Correct choice: <ul style="list-style-type: none"> Cotton wool Reason: any from: <ul style="list-style-type: none"> Kept the potato the warmest for longer It was the best insulator 	1	1 mark for both the correct choice and a good reason.
		total /24	