

**PHYSICAL AND CHEMICAL CHANGES****KEY STAGE(S):** 3**SUBJECT(S):** Science**TOPIC:** Physical and chemical changes**LANGUAGE LEVEL:** New to English - Developing competence**RESOURCE CONTENTS**

- A PowerPoint presentation showing the story of the changes a car goes through
- 2 differentiated sets of information gap activities (Set 1 with more scaffolding, Set 2 with less)
- 2 differentiated sets of What can happen to the car? Sheets (one with pictures, one without)
- 2 differentiated sentence writing worksheets (one with vocabulary given, one without)

**CURRICULUM OBJECTIVES**

- To learn the difference between physical and chemical changes.

**Language functions**      **Useful Language****Describing**

- Present simple tense, "It is ..."
- Present perfect tense, "It has ..."
- Passive tense, "It is left outside ..."

**Asking questions**

- Is this a \_\_\_ change?
- Wh- and how questions.
- What happens next? Then what happens?

**Reasoning, explaining**

- It/This is a \_\_\_\_\_ change because ...
- I think/agree ..., I don't think/agree ...

**Vocabulary**

Another substance, changed, chemical, H<sub>2</sub>O, oxygen, iron, iron oxide, metal, paint, reacted, separated, shape, shape, substance

**PREPARATION****You will need:**

- One copy of Set 1 or Set 2 information gap worksheet for each learner. Set 1 is for those who are "beginners" of EAL but can be used by all learners before Set 2. Set 2 requires learners to seek more information by asking and answering questions with time sequence words.
- One copy of sentence writing or sentence writing (with vocabulary) worksheet for each learner as a pre-task, extension activity or homework.
- One copy of What can happen to a car? or What can happen to a car? (with pictures) substitution table worksheet for each learner as an extension activity or homework.
- Interactive wipe board or projector if you are going to use the PowerPoint Presentation to pre-teach or as a plenary to check answers.

- Bilingual dictionaries. For those who are literate in their first language and/or at the early stage of learning English.

You will need to:

- Hand out the worksheets so that the pupils are in pairs with one having worksheet 1a and the other having worksheet 1b, or one with 2a and the other 2b.
- Photocopy the PowerPoint as a handout for early stage learners to give extra support.

### IDEAS FOR USING THE RESOURCE

This resource could be used:

- whole class
- as differentiation within class
- one to one or small group

What to do

- Information gap activity: Each of the 1a/b pairs work together. They use questions (“The owner decides ..., is this a physical or chemical change?”) to find out answers from each other and discuss (“The water freezes ... why/what happened?”). They then complete their worksheets for each of the stages. 2 a/b is slightly more difficult in that each pair of learners needs to find out each “action” (“What happens next?” – “The owner decides to ...” etc.) before proceeding as 1a/b.
- Learners may be given one copy of the sentence writing (with vocabulary) worksheet” (or without the vocabulary to increase the level of challenge) as a pre-task instead of the PowerPoint. The sentence writing worksheet without the vocabulary list, if not already been used, can then be given as a further writing task (or as homework) to consolidate learning.
- The PowerPoint or the completed sentence writing worksheet can be used to pre-teach and / or for learners to check answers in the plenary.
- One copy of the What can happen to the car? sheet with or without the pictures according to their level is to be given to each learner, to learn / practise making sentences with passive tense.

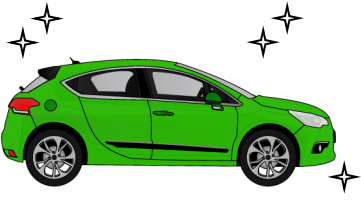
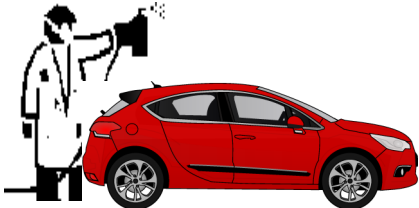
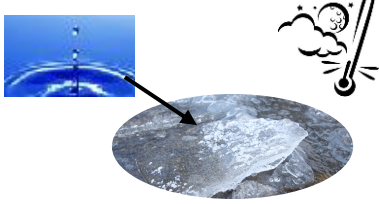




Other ideas for making the best use of this resource

- Learners to work individually to complete the present perfect worksheet (without vocabulary) as a starter for the next lesson.

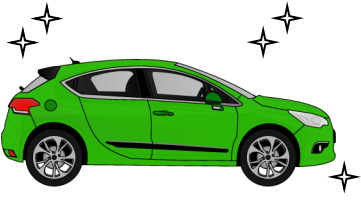
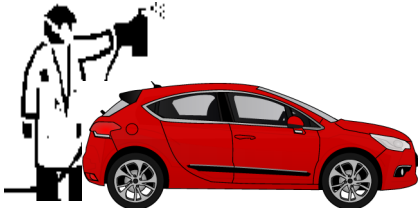
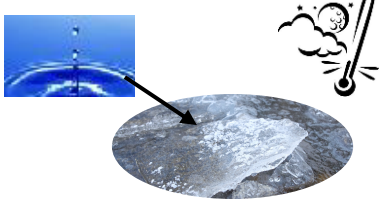




### POSSIBLE EXTENSION ACTIVITIES

Learners could try to write their own “car story” using the completed worksheet as a model, to add on more events before it is taken away to be scrapped.

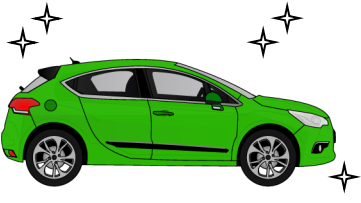
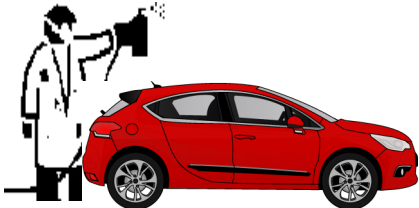



Physical and chemical changes - 1A

	<p>This is a brand new car</p>			
	<p>The owner decides to paint it a new colour.</p> <table border="1" data-bbox="577 678 1517 757"> <tr> <td data-bbox="577 678 1043 757">CHEMICAL</td> <td data-bbox="1043 678 1517 757">PHYSICAL</td> </tr> </table> <p>The paint can be separated from the car.</p>		CHEMICAL	PHYSICAL
CHEMICAL	PHYSICAL			
	<p>One night, a puddle near the car freezes.</p> <table border="1" data-bbox="577 918 1517 996"> <tr> <td data-bbox="577 918 1043 996">CHEMICAL</td> <td data-bbox="1043 918 1517 996">PHYSICAL</td> </tr> </table>		CHEMICAL	PHYSICAL
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	<p>The car skids on the puddle, hits a post and gets a dent.</p> <table border="1" data-bbox="577 1155 1517 1234"> <tr> <td data-bbox="577 1155 1043 1234">CHEMICAL</td> <td data-bbox="1043 1155 1517 1234">PHYSICAL</td> </tr> </table> <p>Only the shape has changed.</p>		CHEMICAL	PHYSICAL
CHEMICAL	PHYSICAL			
	<p>Left outside in the rain, the car begins to rust.</p> <table border="1" data-bbox="577 1393 1517 1471"> <tr> <td data-bbox="577 1393 1043 1471">CHEMICAL</td> <td data-bbox="1043 1393 1517 1471">PHYSICAL</td> </tr> </table>		CHEMICAL	PHYSICAL
CHEMICAL	PHYSICAL			
	<p>Someone comes along and sets fire to the car.</p> <table border="1" data-bbox="577 1630 1517 1709"> <tr> <td data-bbox="577 1630 1043 1709">CHEMICAL</td> <td data-bbox="1043 1630 1517 1709">PHYSICAL</td> </tr> </table> <p>The metal has reacted with oxygen to make a new substance.</p>		CHEMICAL	PHYSICAL
CHEMICAL	PHYSICAL			
	<p>Finally, someone takes the car away and crushes it into a cube.</p> <table border="1" data-bbox="577 1868 1517 1946"> <tr> <td data-bbox="577 1868 1043 1946">CHEMICAL</td> <td data-bbox="1043 1868 1517 1946">PHYSICAL</td> </tr> </table> <p>The shape has changed, but it has not become a new substance.</p>		CHEMICAL	PHYSICAL
CHEMICAL	PHYSICAL			

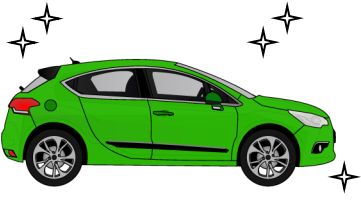
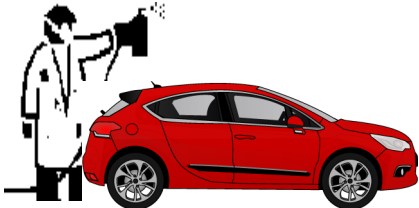
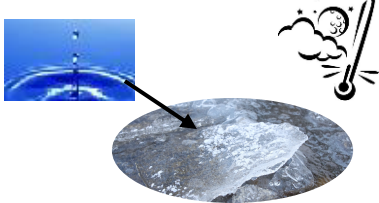




Physical and chemical changes - 1B

	<p>This is a brand new car</p>	
	<p>The owner decides to paint it a new colour.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>One night, a puddle near the car freezes.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>The car skids on the puddle, hits a post and gets a dent.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>Left outside in the rain, the car begins to rust.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>Someone comes along and sets fire to the car.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>Finally, someone takes the car away and crushes it into a cube.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>The shape has changed, but it has not become a new substance.</p>	



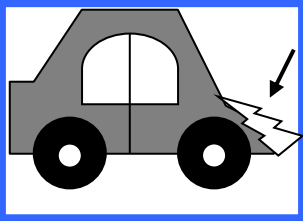





Physical and chemical changes - 2A

	<p>This is a brand new car</p>	
	<p>The owner decides to paint it a new colour.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>The paint can be separated from the car.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>The car skids on the puddle, hits a post and gets a dent.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>Someone comes along and sets fire to the car.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>The metal has reacted with oxygen to make a new substance.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>

Physical and chemical changes - 2B

	<p>This is a brand new car</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>One night, a puddle near the car freezes.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
<p>Even though it has changed from liquid to solid, it is still H<sub>2</sub>O.</p>		
		
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>Left outside in the rain, the car begins to rust.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
<p>The metal has reacted with oxygen to make a new substance.</p>		
		
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
	<p>Finally, someone takes the car away and crushes it into a cube.</p>	
	<p>CHEMICAL</p>	<p>PHYSICAL</p>
<p>The shape has changed, but it has not become a new substance.</p>		

Passive

		sold.	
		painted.	
	is	dented.	
The car		left outside in the rain.	
	can be	set on fire.	
		taken away.	
		crushed into a cube.	 

Passive

The car	is	sold. painted. dented. left outside in the rain.
	can be	set on fire. taken away. crushed into a cube.



Complete the following explanations:

<u>Sequence of events:</u>	<u>Is this a physical or chemical change?</u>
<p>The car <b>has been painted</b> in a new colour.</p> <p>The water <b>has been changed</b> from liquid to solid.</p> <p>The car <b>has been dented</b>.</p> <p>The car <b>has been left</b> to rust.</p> <p>The car <b>has been set</b> on fire.</p> <p>The car <b>has been crushed</b> into a small cube.</p>	<p>This is a _____ change because ...</p> <p>the _____ can be _____ from the car.</p> <p>it is still _____.</p> <p>only the _____ has _____.</p> <p>the _____ has become _____.</p> <p>the _____ has _____ with _____ to make a new _____.</p> <p>the _____ has changed but it has not become _____.</p>

What is the **tense** in the above sentences?

Use these words to complete the explanations: another substance changed H<sub>2</sub>O oxygen iron iron oxide metal paint reacted separated shape shape substance

<u>Sequence of events:</u>	<u>Is this a physical or chemical change?</u>
<p>The car <b>has been painted</b> in a new colour.</p> <p>The water <b>has been changed</b> from liquid to solid.</p> <p>The car <b>has been dented</b>.</p> <p>The car <b>has been left</b> to rust.</p> <p>The car <b>has been set</b> on fire.</p> <p>The car <b>has been crushed</b> into a small cube.</p>	<p>This is a _____ change because ...</p> <p>the _____ can be _____ from the car.</p> <p>it is still _____.</p> <p>only the _____ has _____.</p> <p>the _____ has become _____.</p> <p>the _____ has _____ with _____ to make a new _____.</p> <p>the _____ has changed but it has not become _____.</p>

What is the **tense** in the above sentences?