

Name

Date

7 Materials and components

7.9 Smart and modern materials

Read the questions carefully and then use the student book to help you answer them.

1 What are 'smart fabrics'? Fill in the missing words in the sentences below to complete your answer.

a) Fabrics that can their surroundings.

b) Fabrics that their surroundings.

c) Fabrics that in their surroundings.

2 Smart fabrics are able to change colour. What **three** conditions help them to do this?

a)

b)

c)

3 When babies' nappies change colour, what does the fabric respond to?

.....

4 How can this smart nappy be of use to a busy mum?

.....

5 Can you state another use for this type of smart fabric?

.....

6 Clothing, e.g. T-shirts, can be printed with special inks that change colour. Which of the three conditions (question 2) would this printing respond to?

.....

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7 Modern fabrics require a power source to help them to interact. How could this power source be achieved?

a)

b)

8 The power source requires a conductor to activate the heat or light source.
What is used in modern fabrics to do this?

.....

9 Suggest a use (application) for a modern fabric that lights up when activated.

.....

10 Why would this application be useful to have on the product you suggested?

.....

11 Biomimetic fabrics have been designed by mimicking (copying) nature.

Fill in the missing parts of the table below, and then try to find out other examples of biomimetics.

Name of fabric	Source from nature	Type of product
	Shark's skin	
		Popular fastening
Phosphorescent (glow in the dark)		