Addition polymerisation: knowledge check

1.1 The diagram represents a reaction in which a small section of polymer is formed.

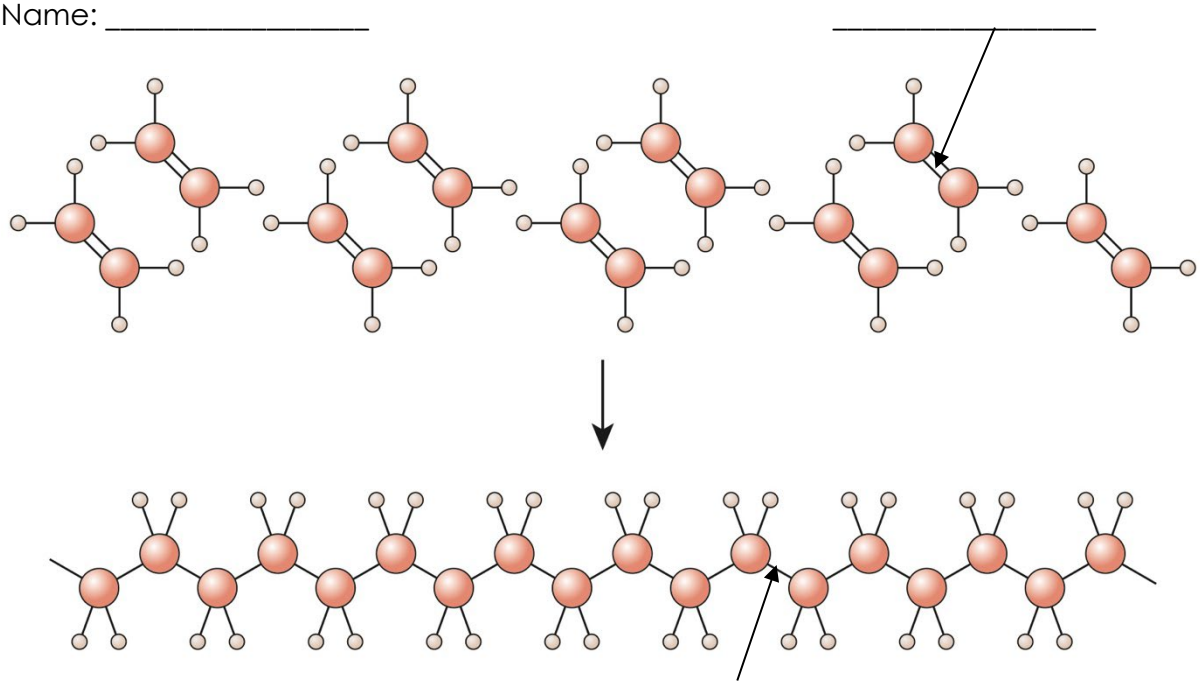
Label the diagram using the following words. Then identify and name the monomer used and the polymer formed.

monomer **polymer**

single C–C covalent bond **double C=C covalent bond**

_____

Name: _____ _____



_____ _____

Name: _____

1.2 Decide whether each of the following statements is true or false and add your answer in the box provided.

(a) During polymerisation, a large molecule is broken up into smaller molecules. **True** ☐ **False** ☐

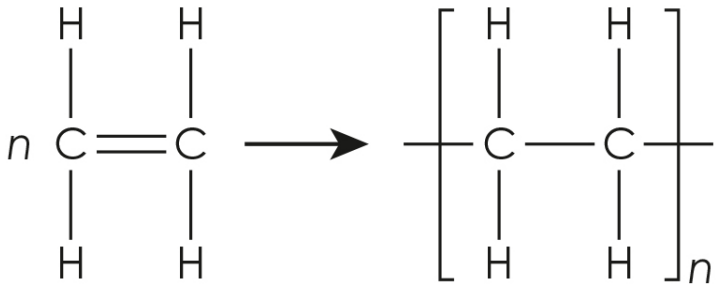
(b) Alkanes are used to make addition polymers. **True** ☐ **False** ☐

(c) Only one product is formed during addition polymerisation. **True** ☐ **False** ☐

(d) The polymer formed from ethene is poly(ethene). **True** ☐ **False** ☐

(e) The monomer used to make poly(propene) is propane. **True** ☐ **False** ☐

1.3 Alkenes can be used to make addition polymers. The equation shows ethene molecules joining up to form poly(ethene).



Use some of the words to complete the sentences describing this equation.

monomer **polymer** **single covalent bond** **small**

ethane **double covalent bond** **ethene** **mono**

repeating unit **poly** **large** **poly(ethene)**

The name of the monomer used in this addition polymerisation reaction is _____ .

The name of the polymer formed is _____ .

The _____ in the monomer molecule allows them to join together to form an addition polymer.

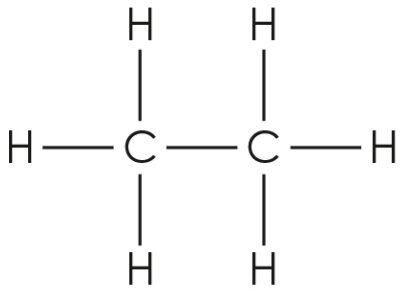
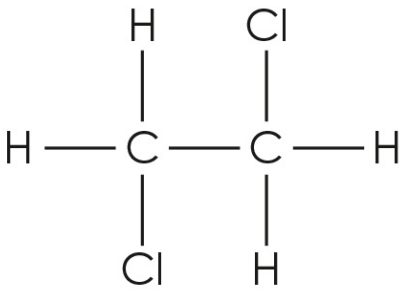
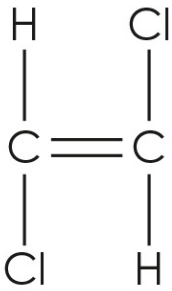
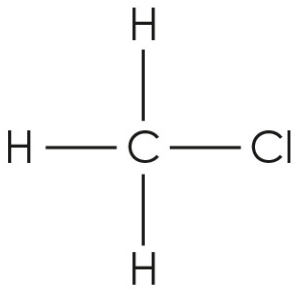
Addition polymers have the prefix _____, followed by the name of the _____ in brackets.

As addition polymer molecules are so _____, they are represented by drawing the part of the polymer that is repeated many times. This is known as the _____ .

Addition polymerisation: test myself

Answer questions 2.1 to 2.5 by circling the correct answer(s). There may be more than one correct answer in each question.

2.1 Which of these molecules is a monomer for an addition polymer?

A 	**B** 
C 	**D** 

2.2 Which **three** of these molecules are suitable monomers to make an addition polymer?

butene

propane

pentene

butane

ethane

ethene

methene

2.3 What is the name of the monomer used to make poly(chloroethene)?

chloroethane

chlorane

ethene

chloroethene

ethane

chlorene

2.4 What is the name of the polymer made from the monomer tetrafluoroethene?

poly(fluoroethene)

poly(tetrafluoroethane)

poly(ethene)

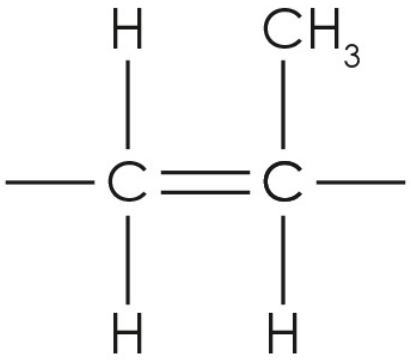
poly(tetrafluoroethene)

poly(fluoroethane)

poly(ethane)

2.5 Which of the following shows the correct repeating unit for poly(propene)?

A



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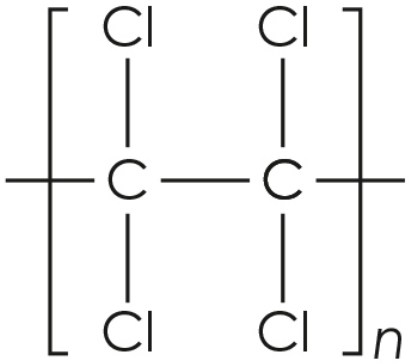

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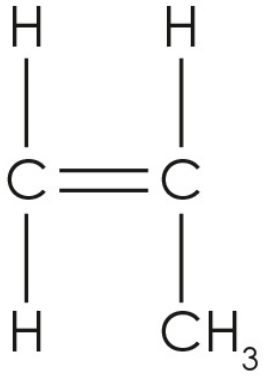

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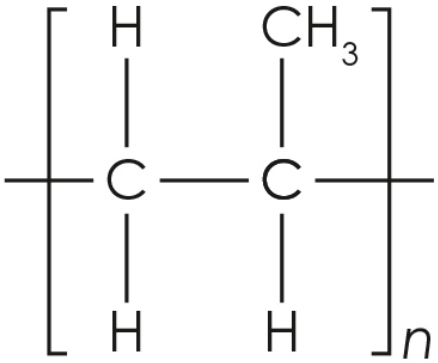
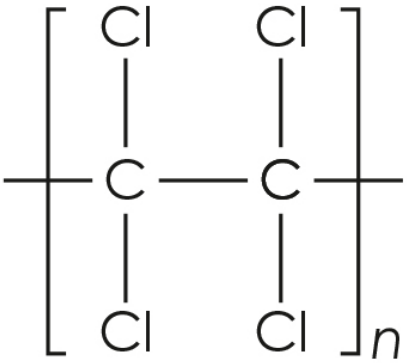
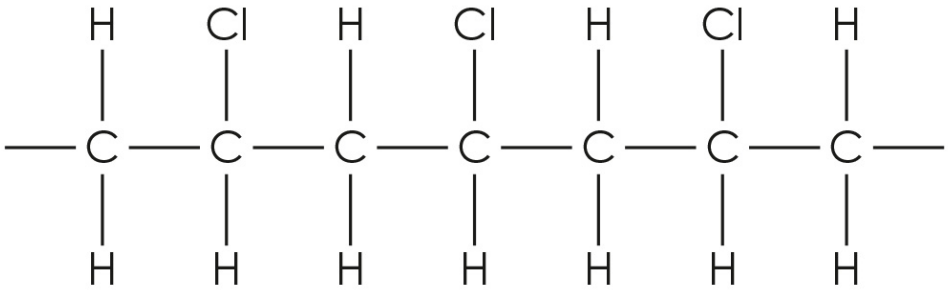


2.6 The diagram shows the repeating unit of an addition polymer:



Draw the displayed formula of the monomer being represented by this repeating unit.

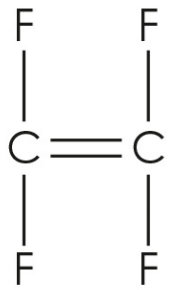
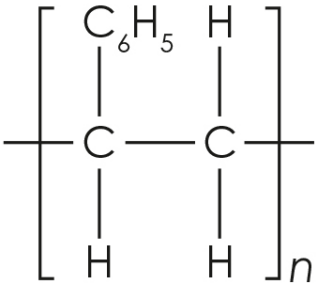
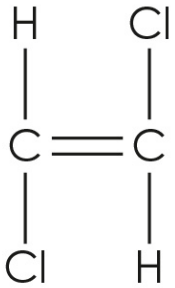
2.7 The diagram shows a section of a polymer.



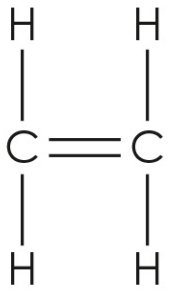
Draw the repeating unit of this polymer.

Addition polymerisation: feeling confident?

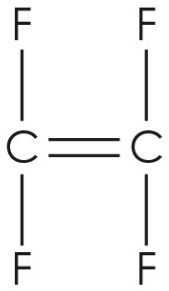
3.1 Complete the table with the missing images for the monomers or repeating units.

Monomer	Repeating unit of polymer
	
	
	

3.2 Poly(ethenetetrafluoroethene) is made from the two monomers shown:



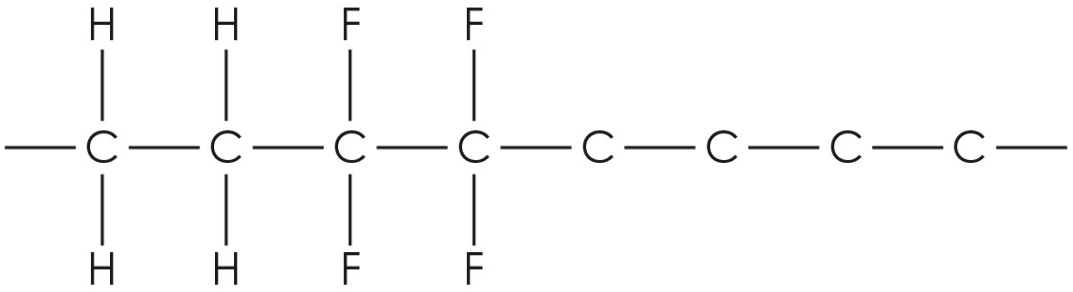
ethene



tetrafluoroethene

The two monomers join in the polymer chain in an alternating pattern.

Complete the diagram to produce a section of the polymer chain that contains two molecules of each monomer and is eight carbon atoms long.



Addition polymerisation: what do I understand?

Think about your answers and confidence level for each mini-topic. Decide whether you understand it well, are unsure or need more help. Tick the appropriate column.

Mini-topic	I understand this well	I think I understand this	I need more help
I can understand the meanings of the terms monomer, polymer and polymerisation.			
I can explain how addition polymers are formed.			
I know how to name addition polymers.			
I can interpret equations used to represent the process of addition polymerisation.			
I can identify repeating units.			
I can deduce the identity of monomers from repeating units and vice-versa.			
Feeling confident? topic	**I understand this well**	**I think I understand this**	**I need more help**
I can draw the structure of monomers from repeating units and vice-versa.			
I can draw a section of a polymer chain formed from two monomers.			