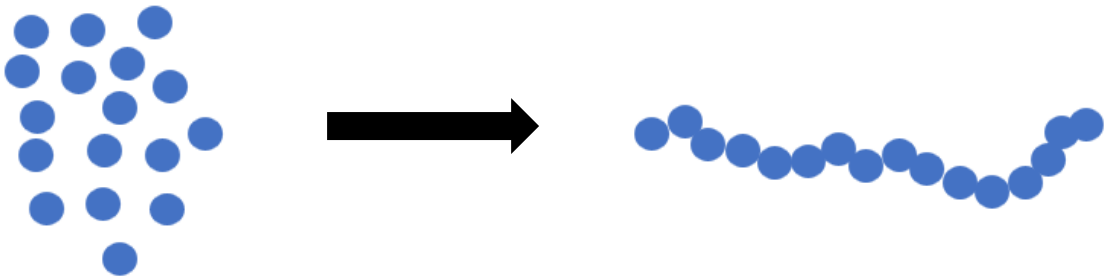
Knowledge check

Subject area: Organic chemistry | **Level: 14–16 years (Foundation)**

Topic: Addition polymerisation | **Source: rsc.li/2GRWsij**

1. **The diagram shows the process called polymerisation.**



Which of the following statements are true or false about this process?
Write a 'T' if true, and an 'F' for false in the box.

a) **The particles on the left are called monomers.** T

b) **In this process, many molecules bond together to form a very long chain molecule.** T

c) **The number of molecules on each side is the same.** F

d) **Different monomers can be used to make new substances having different properties and uses.** T

e) **Ethane is an example of a monomer.** F

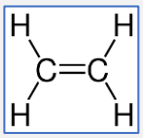
f) **Many polymers break down in the environment and are biodegradable.** F

g) **Propene forms a polymer called poly(propane).** F

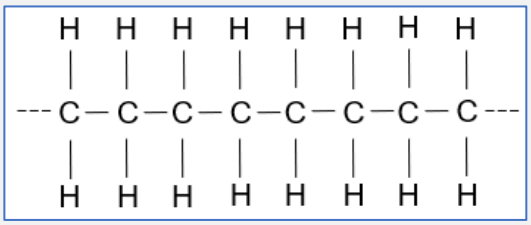
h) **Unsaturated molecules can form addition polymers.** T

2. This question is about making poly(ethene) from ethene.

a) Draw the structure of an ethene molecule showing all of the chemical bonds.



b) Draw the missing bonds on this section of a poly(ethene).



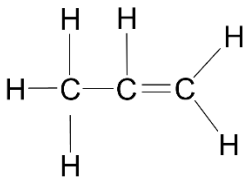
c) How many ethene molecules are needed to make the part of the chain shown in part b)?

Answer: *Four.*

d) Complete the table below that describes the differences between ethene and poly(ethene):

	Ethene	**Poly(ethene)**
Carbon double bonds present?	***Answer:*** *Yes.*	***Answer:*** *No.*
Unsaturated or saturated	***Answer:*** *Unsaturated.*	***Answer:*** *Saturated.*
Observation on adding bromine water	***Answer:*** *Orange to colourless.*	***Answer:*** *Stays orange.*

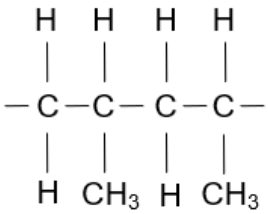
3. This question is about the molecule below.



a) Name this molecule.

Answer: *Propene.*

The structure below shows part of a polymer made from the molecule in part a).



b) What is the name of this polymer?

Answer: *Poly(propene).*

c) Describe what happens to the carbon double bond in the molecule in part a) when it makes a polymer.

Answer: *It turns into a carbon single bond.*
Each carbon atom then forms two more carbon single bonds to other monomer units.