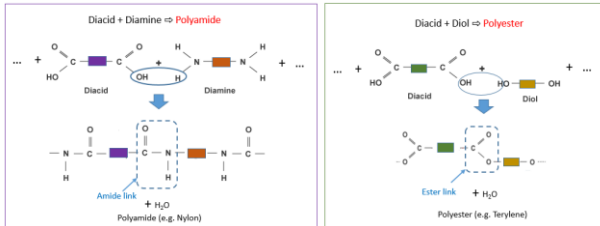


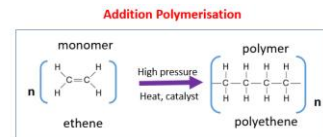
## HL From Models to Materials - Guided Notes

### Slide 3: Condensation polymerisation



condensation polymerisation → the condensation polymer + a small molecule

addition polymerisation → the addition polymer



### Slide 4: Polyesters

### Slide 5: Polyesters

- Diol and \_\_\_\_\_ acid monomers
- \_\_\_\_\_ acid monomer

### Slide 6: Terylene

- Monomers are:
- Ethane-1,2-diol
- Benzene-1,4-\_\_\_\_\_ acid
- Give two uses for \_\_\_\_\_.
- Draw the monomers.
- Draw one repeat unit.
- \_\_\_\_\_ the ester linkage.

**Slide 7: Monomers:**

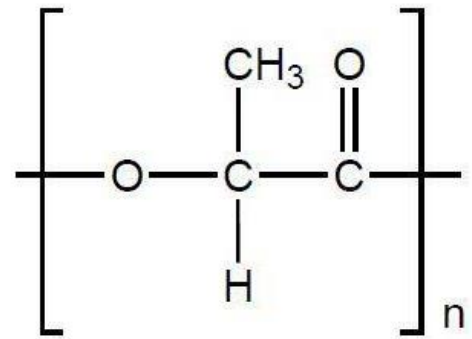
**Ethane-1,2-diol**

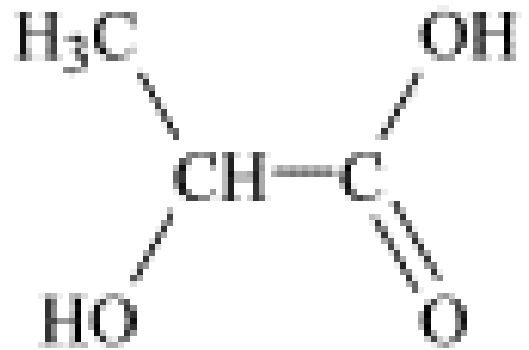
**Benzene-1,4-dicarboxylic acid**

- Repeat unit:
- n
- Ester linkage

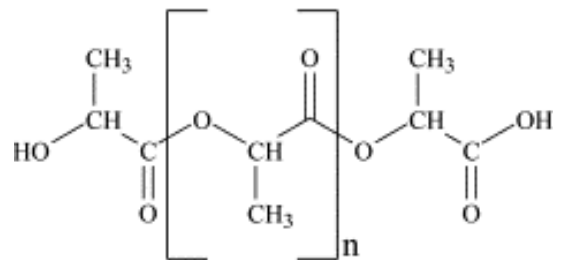
**Slide 8: Poly(lactic acid)**

- A \_\_\_\_\_, made from maize.
- It is \_\_\_\_\_.
- Used for food and drinks \_\_\_\_\_.
- The one monomer is 2-\_\_\_\_\_ acid.





## Lactic Acid



Poly (Lactic Acid)

### Slide 9: Polyamides

- Diamine and dicarboxylic acid monomers
- Amino acid monomer
- What type of monomers would be needed to produce polyamides?

### Slide 10: Nylon-6,6

- Monomers are:
- 1,6-diaminohexane
- Hexane-1,6-dioic acid
- Draw the monomers.
- Draw the repeat unit.
- \_\_\_\_\_ the amide link.

### Slide 11: Monomers: 1,6-diaminohexane Hexane-1,6-dioic acid

- Repeat unit:
- n
- amide link

### Slide 12: Kevlar

- Monomers are:
- Benzene-1,4-diamine
- \_\_\_\_\_-1,4-dioic acid
- Give two uses of kevlar.
- Draw the monomers.
- Draw the repeat unit.





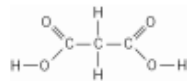
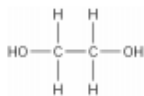
**Slide 13: Monomers:**  
**Benzene-1,4-diamine**  
**Benzene-1,4-dioic acid**

- Repeat unit:

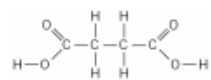
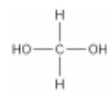
**Slide 14: Questions**

In the spaces below, draw the structure of the polyester formed from:

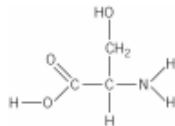
**a** ethanediol and propanedioic acid



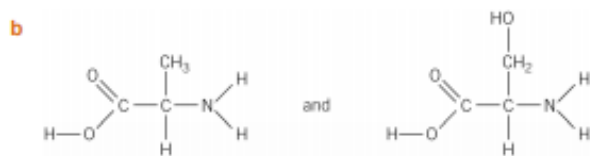
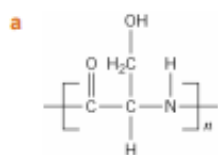
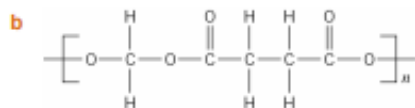
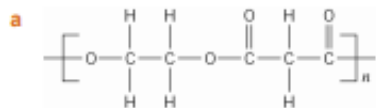
**b** methanediol and butanedioic acid



**a** In the space below, draw the structure of the dipeptide formed from two molecules of the amino acid serine.



Slide 17: Mark in green pen



Slide 18: Mark in green pen

a condensation polymer



ii It is called nylon 6,6 because both monomers contain 6 carbon atoms.

c Nylon has strong intermolecular forces between the polymer chains.

### Slide 19: Exam question

### Slide 20: Mark scheme

### Slide 21: Exam question

### Slide 22: Mark scheme

### Slide 23: Exam question



**Slide 24: Exam question**

