

NAME: \_\_\_\_\_

FORM/GROUP \_\_\_\_\_

# DESIGN AND TECHNOLOGY REVISION BOOKLET

# 10

WORLD ASSOCIATION OF TECHNOLOGY TEACHERS

<https://www.facebook.com/groups/254963448192823/>

[www.technologystudent.com](http://www.technologystudent.com) © 2018 V.Ryan © 2018

## THE ENVIRONMENT - BOOKLET 2

PRODUCT LIFE CYCLE  
LIFE CYCLE ENERGY ANALYSIS  
THE SIX Rs  
SUSTAINABLE FORESTS

WORLD ASSOCIATION OF TECHNOLOGY TEACHERS

<https://www.facebook.com/groups/254963448192823/>

[www.technologystudent.com](http://www.technologystudent.com) © 2018 V.Ryan © 2018

## SUITABLE REVISION MATERIAL FOR:

DESIGN AND TECHNOLOGY  
PRODUCT DESIGN  
RESISTANT MATERIALS  
GRAPHIC PRODUCTS

This examination booklet can be duplicated and printed out if required but not edited in any way.

The links to [www.technologystudent.com](http://www.technologystudent.com) cannot be removed.

The PDF file can be stored on school / college systems and distributed electronically (NO EDITING ALLOWED)

PLEASE RESPECT THE COPYRIGHT - report infringers to [techteacher@technologystudent.com](mailto:techteacher@technologystudent.com)

Not be distributed at courses or by course instructors / consultants

WORLD ASSOCIATION OF TECHNOLOGY TEACHERS

<https://www.facebook.com/groups/254963448192823/>

[www.technologystudent.com](http://www.technologystudent.com) © 2018 V.Ryan © 2018

# PRODUCT LIFE CYCLE

LINK TO HELP AND INFORMATION

<https://www.technologystudent.com/prddes1/lifecy1.html>

1. What is meant by the term Product Life cycle? **3 marks**

---

---

---

2. In the space below, draw an annotated diagram that represents the life cycle of a modern car. **8 marks**

# LIFE CYCLE ENERGY ANALYSIS

LINK TO HELP AND INFORMATION [https://www.technologystudent.com/prddes1/life\\_energy1.html](https://www.technologystudent.com/prddes1/life_energy1.html)

3. What is 'Life Cycle energy Analysis? **4 marks**

---

---

---

---

---

---

---

---

4. Draw a symbol that represents the term ' Life cycle Energy Analysis'. **3 marks**

# LIFE CYCLE ENERGY ANALYSIS

LINK TO HELP AND INFORMATION [https://www.technologystudent.com/prddes1/life\\_energy1.html](https://www.technologystudent.com/prddes1/life_energy1.html)

5. Three stages of 'Life Cycle Energy Analysis' are written below. There are many more.

For each of the three stages, explain how energy could be saved and give at least one example of how this could be achieved.

## STAGE

## EXPLANATION

**A. CALCULATING THE ENERGY REQUIRED FOR THE EXTRACTION OF RAW MATERIALS FROM THE GROUND**

---

---

---

---

---

**B. ENERGY USED AT EVERY STAGE OF MANUFACTURE**

---

---

---

---

---

**C. ENERGY REQUIRED TO RECYCLE / DISPOSAL OF THE PRODUCT AT THE END OF ITS USEFUL WORKING LIFE**

---

---

---

---

---

# LIFE CYCLE ENERGY ANALYSIS

LINK TO HELP AND INFORMATION

<https://www.technologystudent.com/pdf14/display6.pdf>

6. Select two of the following Six Rs and explain why you think designers and manufacturers, must adopt them as their philosophy / moral position.

**3 marks for each 'R'**

## SIX Rs

**REDUCE** - reduce the materials we use in manufacturing and at home.

**REUSE** - reuse materials rather than throwing them away.

**REFUSE** - do not buy or use a product, if it is not environmentally sustainable or it is not necessary.

**RETHINK** - consider how products are made, so that they are sustainable. Rethink your lifestyle i.e. walk instead of driving a car, for a short journey.

**REPAIR** - design products so that they are repairable.

**RECYCLE** - design products so that they can be disassembled/recycled

A.

---

---

---

---

---

B.

---

---

---

---

---

# MAINTENANCE AND REPAIRABILITY

LINK TO HELP AND INFORMATION

<https://www.technologystudent.com/prddes1/repair1.html>

7. Designing and manufacturing products, that can be repaired and maintained, rather than products that are discarded when they fail, helps protect the environment. Why is this?

**3 marks**

---

---

---

8. Why is 'planned obsolescence' bad for the environment? **4 marks**

---

---

---

---

9. Research the internet, to find the names of products, that are designed so that they can be upgraded, repaired and maintained, increasing their working life span.

**1 mark per product (maximum of 8 products / marks)**

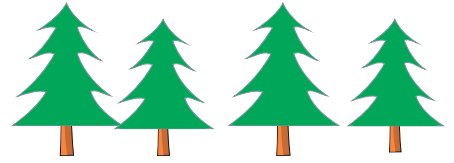
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

# SUSTAINABILITY

LINKS TO HELP AND INFORMATION

<https://www.technologystudent.com/prddes1/susenv1.html>

10. Complete the paragraph below by filling the blanks with the missing words. Select each word from the list below. **6 marks**



**seedlings    felled    environment    sustainable    pulp    mature**

A \_\_\_\_\_ forest is a forest that is carefully managed so that as trees are \_\_\_\_\_ they are replaced with \_\_\_\_\_ that eventually grow into \_\_\_\_\_ trees. This is a carefully and skilfully managed system. The forest is a working environment, producing wood products such as wood \_\_\_\_\_ for the paper / card industry and wood based materials for furniture manufacture and the construction industry. Great care is taken to ensure the safety of wildlife and to preserve the natural \_\_\_\_\_.

Sustainable forests are the result of a commonsense policy to replace trees that are felled so that forests continue to exist providing natural materials for us all.

11. In your opinion, why is it important to support sustainable forestry. **4 marks**

---

---

---

---

# SUSTAINABILITY

LINKS TO HELP AND INFORMATION

<https://www.technologystudent.com/joints/sustain1.html>

12. The logo shown opposite is sometimes printed on timber and packaging.

Explain the meaning of this logo. **3 marks**



---

---

---

---

13. The logo shown opposite is sometimes printed on timber and packaging.

Explain the meaning of this logo. **3 marks**



---

---

---

---