

You will need: Black & blue pen, pencil, ruler, rubber and colouring pencils.



Stewards Academy
DESIGN & TECHNOLOGY
KS3 BLENDED LEARNING BOOKLET

“Imagine it, Design it, Make it”



Name:

Technology Group:

Tutor Group:

AB:



Assessment ladder

| Attainment Band: | Knowledge and Understanding | Skills |
|--------------------|--|---|
| Yellow Plus | <ol style="list-style-type: none"> 1. Can Justify the importance of User needs 2. Can evaluate renewable energy sources 3. Can explain Smart materials 4. Is able to choose budget spending and justify 5. Can validate why to put wastage to use 6. Can assess properties of different materials | <ol style="list-style-type: none"> 7. Can produce outstanding designs 8. Uses annotations effectively to provide clarity to designs 9. Uses colour and shade to transform designs 10. Uses research effectively to draw conclusions |
| Yellow | <ol style="list-style-type: none"> 1. Can analyse the importance of User needs 2. Can discuss renewable energy sources 3. Can explain Smart materials 4. Is able to choose budget spending with reasoning 5. Can reason why to put wastage to use 6. Can classify properties of different materials | <ol style="list-style-type: none"> 7. Can produce Excellent designs 8. Uses annotations consistently to add clarity 9. Uses colour and shade to add context to designs 10. Uses research to underpin findings |
| Blue | <ol style="list-style-type: none"> 1. Can identify the importance of User needs 2. Can classify renewable energy sources 3. Can summarise Smart materials 4. Is able to choose budget spending with brief explanation 5. Can point out why to put wastage to use 6. Can list properties of different materials | <ol style="list-style-type: none"> 7. Can produce good designs 8. Uses annotations with designs 9. Uses colour and shade in designs 10. Carries out independent research |
| Green | <ol style="list-style-type: none"> 1. Can list the importance of User needs 2. Can name renewable energy sources 3. Can label Smart materials 4. Is able to be close to budget spending 5. Can explain why to put wastage to use 6. Can list properties of different materials | <ol style="list-style-type: none"> 7. Produces basic designs 8. Occasional use of annotations 9. Uses colour in designs 10. Can find relevant information on the internet |
| White | <ol style="list-style-type: none"> 1. Can list the importance of User needs 2. Can copy renewable energy sources 3. Can list Smart materials 4. Is able to recognise the term budget 5. Can retell why to put wastage to use 6. Can list properties of some materials | <ol style="list-style-type: none"> 7. Produces basic designs 8. Minimal use of annotations 9. Uses colour in designs 10. Uses internet to research basic information |

Lesson 1 – LI: Identify the importance of user needs

Task 1: Answer the following question for all 3 products on the first slide. How have these products evolved over the years to meet user needs?

Wireless earphones:

Smartwatch:

Cordless/handheld vacuum cleaner:

Task 2: Choose an object in your house and think about how it could be simplified or made more elegant to better suit the needs of the user e.g. an arm chair in the front room that takes up a lot of space but doesn't have any function other than to sit down.

Write down the ways you could simplify the product or ways you could enhance it to make it better.

1.

2.

3.

4.

5.

Drawing/Design page


Task 1: Draw the product to reflect the changes you have identified. Think carefully about the users needs and incorporate them into your design.
Enhance your designs with colour and annotations that explain the key features.

Lesson 2 – LI: Recognise different renewable energy sources

Task 1: Research different ways we can use the sea or water to harness energy. This could be in the form of wave power, waterfalls or turbines. Write down how these methods work and decide which one would be most appropriate for your home of the future.

Notes below

Task 2: Design a home for a family of 4 that is powered by one of the methods you have researched in task 1. Think about the location of your home in relation to the energy source, the size and appearance and also the different functions the house may have. Enhance your design with colour and annotation to explain the key parts that aren't obvious to the reader.

A large, empty rectangular box with a thin black border, intended for a student to draw a house design as part of Task 2. The box is currently blank.

Drawing/Design page

Lesson 3 – LI: Develop knowledge on smart materials, design and annotation skills

Task 1: Research the different smart materials and then match up the definitions below.

PHOTOCHROMIC

HEAT

THERMOCHROMIC

WATER

HYDROCHROMIC

VOLTAGE


ELECTROCHROMIC

LIGHT

Task 2: Write a super sentence below on smart materials defining them.

Task 3: Name 3 smart products you've seen before or know of.

Task 4: Design some new innovative smart material based products.

A large empty rectangular box with a black border, intended for drawing or design. It occupies the right half of the page below the task instructions.

Drawing/Design page

Evaluation box – Write a few short sentences on how you think you're doing with your mini projects.

What's going well?

How can you improve?

Task 1: Your bunker is limited to **5 rooms**. Write down the name of each room (e.g. bedroom, cinema room, gym) then list in detail what you will need to have in each one. Remember you have a budget of £2 million, don't spend it all in one room!

Room 1

Room 2

Room 3

Room 4

Room 5

Lesson 4 – LI: Plan a design with a budget limit

Task 2: Create a floor plan (birds eye view) for your bunker similar to the one on the right. This view should show where each room is and the large items they contain. You may want to label the room for reference.



Drawing/Design page

Task 3: Choose one room in your bunker and draw the floor plan in detail. This should include most of the items you have chosen

Lesson 5 – LI: Recognise the difference that can be made when putting wastage to use

Task 1: Make a list of the packaging you use and throw away over a 3 day period. What does it consist of? Card, paper, plastic?

1.

2.

3.

4.

5.

6.

What R's are we using to make a difference? (Hint: it's more than one).

Task 2: Use the items in your list to design a dress or suit that could be worn by a celebrity to an event. The outfit should be grand and the materials you use should be on display so people attending the event can share your message.

A large empty rectangular box with a black border, intended for drawing a design of a dress or suit made from recycled packaging materials.

Drawing/Design page

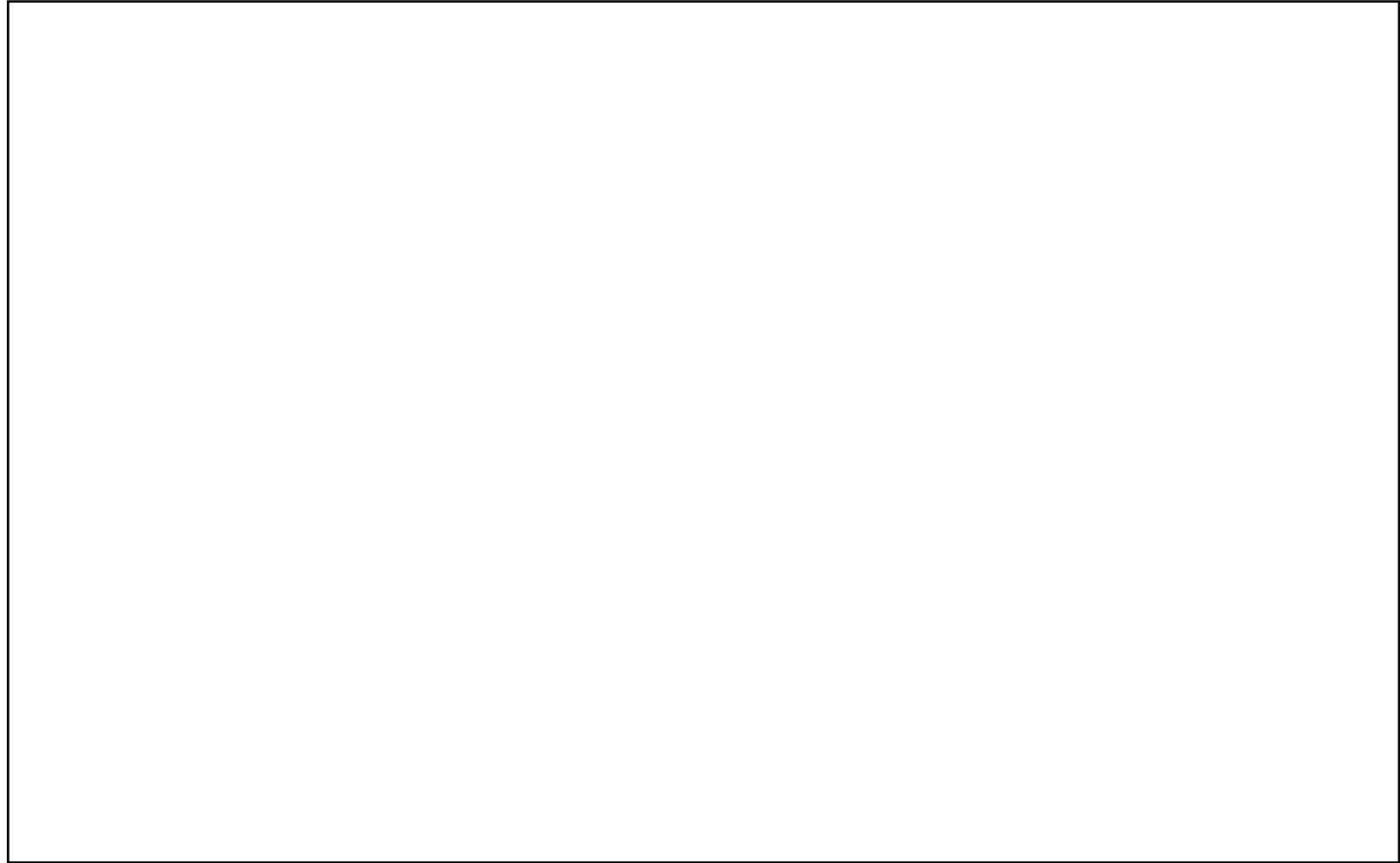
Lesson 6 – LI: Develop knowledge on E-textile materials and their properties/uses

Task 1: Use the internet to research 4 different e-textiles products. Describe how they are used in society and how you could use them in your day to day life.

Notes below

Task 2: Context – you are going on a hike with some friends. You know that you have a small bag which contains food and water for the trip. Phone signal might be an issue and the weather is sunny now but may worsen as the day goes on.

Design a jacket that will keep you warm on the hike but also contains technology that will help you on your hike. Think carefully about the issues that you might face and the points raised in the context as you create your solution. Add colour to enhance your work and annotate to explain any key features.

A large empty rectangular box with a black border, intended for drawing and annotation of a jacket design. The box is currently blank.

Drawing/Design page

Evaluation box – Write a few short sentences on how you think you're doing with your mini projects.

What's going well?

How can you improve?

Lesson 7 extension– LI: Recognise different materials and their properties

Task 1: Using the internet links I have provided and the information gone through in the lesson, make a table of materials and their properties and uses

| Type of timber | Name of wood | Properties | Uses |
|----------------------------|---------------------|-------------------|-------------|
| Hardwood | | | |
| | | | |
| | | | |
| | | | |
| Softwood | | | |
| | | | |
| | | | |
| | | | |
| Manufactured Boards | | | |
| | | | |
| | | | |
| | | | |

| Type of metal | Name of metal | Properties | Uses |
|----------------------|----------------------|-------------------|-------------|
| Ferrous | | | |
| | | | |
| | | | |
| | | | |
| Non-Ferrous | | | |
| | | | |
| | | | |
| | | | |
| Alloys | | | |
| | | | |
| | | | |
| | | | |

| Paper & Board | Type of paper/board | Properties | Uses |
|--|---------------------|------------|------|
| Paper | | | |
| | | | |
| | | | |
| | | | |
| Board | | | |
| | | | |
| | | | |
| | | | |
| Type of plastic | Type of plastic | Properties | Uses |
| Thermosetting | | | |
| | | | |
| | | | |
| | | | |
| Thermoplastic (Thermoforming) | | | |
| | | | |
| | | | |
| | | | |

| Type of fabric | Type of fabric | Properties | Uses |
|------------------|----------------|------------|------|
| Natural | | | |
| | | | |
| | | | |
| | | | |
| Synthetic | | | |
| | | | |
| | | | |
| | | | |
| Blended | | | |
| | | | |
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