

## Teacher guide - step by step

Lesson tasks/order
1. Intro project, baseline assessment – survey classroom
2. Understand scale and produce scale drawing of classroom in 2D Design software and draw scale plan of classroom
3. Intro project, choose building and start understanding spaces needed and the sizes needed
4. Hand drawn plan with sizes
5. Scale plan in 2D design
6. Scale plan in 2D design – halfway assessment
7. Build virtual classroom in <a href="#">TinkerCAD</a>
8. Build virtual classroom in <a href="#">TinkerCAD</a>
9. Build virtual classroom in <a href="#">TinkerCAD</a>
10. Build virtual classroom in <a href="#">TinkerCAD</a>
11. Written assessment
12. Final lesson
If 13 + lessons, then tasks can be extended as required by teacher

## Developing

### Research CAD and CAM

You should write a brief report explaining these processes and giving examples of each. You should also include at least two advantages and two disadvantages for each.

M

### Fact sheet about 3D printing.

Your leaflet should explain what 3D printing is, how it works and should feature some real life examples of 3D printed products

M

### Produce a newspaper article.

Write an article about renewable energy sources  
You may wish to focus on one particular energy source. You should include details and a picture of the energy source you are writing about (remember to include a catchy headline.)

M

## Secure

### Create a leaflet on the environmental impacts of using plastics to manufacture products.

Your leaflet should include interesting facts, information and images. You should also consider possible alternative materials.

M  
2

### Analyse an existing building

Find an image (or images) of a building and analyse it. Include information on the materials that have been used, the design of the building, what the purpose of the building is and what you think are its good/bad points

M  
2



FHS DT

**D&T**  
**Takeaway**  
**Homework**  
**Architecture**

## Challenging

Investigate building regulations.

What size must a door be?

What size must a door be for disabled access?

What width must a corridor be?

Do you need to leave space for

D

### Model an iconic design.

Using materials that you have at home create a model of an iconic building.

Use photos to explain how you have made it and why you think it is iconic.

Present your in a story board format

D

Initial assessment – Task 1a – hand drawn draft plan with all measurements

Glue hand drawn plan here



## Task 1b - Working to scale – conversion of measurement

Measurements of the classroom you are in.....	Actual size in Meters	Actual size CMs	1:10 (divide by 10)	1:20 (divide by 20)	Change unit of measurement	
					1:10	1:20
e.g. Length of room	6 M	600 cm's	60 cm's	30 cm's	600 mm	300 mm



## Task 1C - Final scale plan – drawn on 2D design and to scale

Glue a screen shot of your room plan here

### **Teacher assessment –**

Emerging - Most features drawn, not to scale, lots of support with 2D design

Developing - All features drawn, mostly to scale, some support with 2D design

Expected - Detailed, drawn to scale, independent use of 2D design

Exceeding - Extremely detailed, all features, accurate to scale 1:10 or 1:20, independent use and ability to help others.

### **Student response -**

## Task 2a - Classroom Research



The classroom I have chosen to develop is:

Essential Features	Size in M's	Non-Essential Features	Size in M's

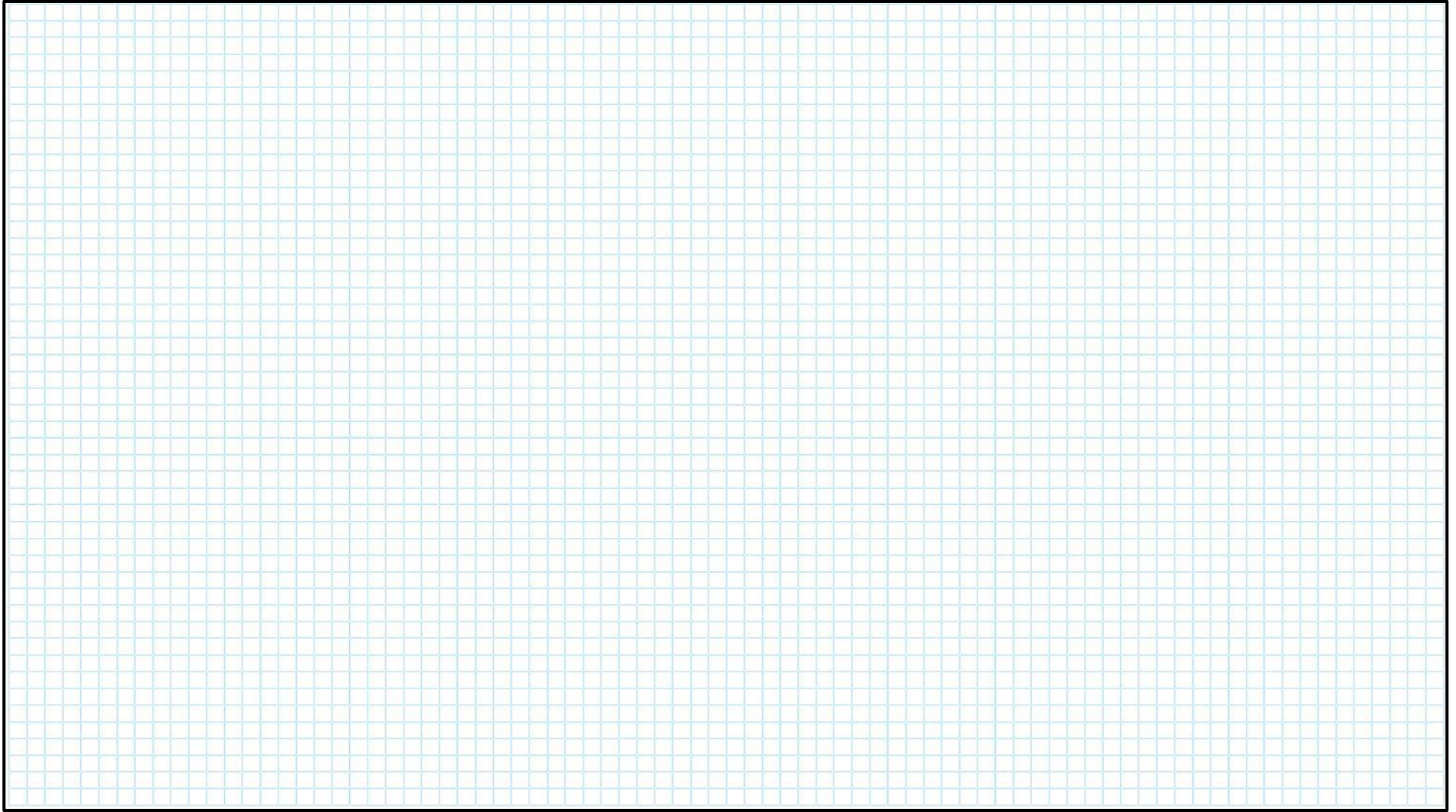
<b>Design</b>	Understand what makes a successful design and apply this knowledge to improve ideas.	<b>1 Emerging</b> <b>2 Developing</b> <b>3 Expected</b> <b>4 Exceeding</b>
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## Task 2b - Interior Mood Board (extension)



Design	Understand what makes a successful design and apply this knowledge to improve ideas.	<b>1 Emerging</b> <b>2 Developing</b> <b>3 Expected</b> <b>4 Exceeding</b>
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## Task 2c - Developing a floorplan by hand



Design

Understand what makes a successful design and apply this knowledge to improve ideas.

**1 Emerging**  
**2 Developing**  
**3 Expected**  
**4 Exceeding**



# Floor plan – Review Sheet

Architecture

My design has:	R1	R2	R3
A clear outline of the shape my classroom			
Includes the essential features from my classroom research sheet			
Interior <u>and</u> exterior walls that that have a thickness (i.e. they aren't just 'a line')			
Clearly labelled rooms and spaces (including exterior spaces)			
Clearly marked interior doorways			
Clearly marked exterior doorways			
Clearly marked windows			
Marked out furniture locations (Tables, chairs, beds, fixtures etc.)			
<b>Extension:</b> a good understanding of regulations			
<b>Extension:</b> all measurements identified			

Design	Understand what makes a successful design and apply this knowledge to improve ideas.	<b>1 Emerging</b> <b>2 Developing</b> <b>3 Expected</b> <b>4 Exceeding</b>
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# Yr8 – Homework menu 1

Teacher feedback

WWW.....

EBI....

	1	2	3	4
<b>Merit</b>	<b>Merit x 2</b>		<b>Distinction</b>	



Screenshot of my final floorplan

Design	Understand what makes a successful design and apply this knowledge to improve ideas.	<b>1 Emerging</b> <b>2 Developing</b> <b>3 Expected</b> <b>4 Exceeding</b>
Make	Know the correct types of software to use, why they are most suitable for the job and how they enable precision and quality.	
Evaluate	Know how to evaluate and check quality, how to solve problems that may occur, and understand the impact on the final product.	
Technical knowledge	Know, understand and apply scale and measurement.	
	Adapt and convert measurements to create and use suitable scale and apply this knowledge and understanding.	

Task 3a – Develop a virtual interior of your class room design, this does not need to be to scale.  
Tinkercad development log – screen shot your building at the end of each lesson.

Lesson 1

Lesson 2

Design

Understand what makes a successful design and apply this knowledge to improve ideas.

1 Emerging  
2 Developing  
3 Expected  
4 Exceeding

Task 3a – Develop a virtual interior of your class room design, this does not need to be to scale.  
Tinkercad development log – screen shot your building at the end of each lesson.

Lesson 3

Lesson 4

Design

Understand what makes a successful design and apply this knowledge to improve ideas.

1 Emerging  
2 Developing  
3 Expected  
4 Exceeding

## Tinkercad classroom – Review Sheet

My design:	R1	R2	R3
Follows the same basic design as my 2D plan			
<u>Clearly</u> shows the classrooms function			
<u>Clearly</u> shows the placement of windows and doors			
Has <u>all</u> features correctly aligned			
Has no unintended gaps between shapes			
Has some engraved details			
Has some embossed details			
<b>Extension 1:</b> Has additional exterior features			
<b>Extension 2:</b> Has a clear interior structure			
<b>Extension 3:</b> Has a detachable component			

Evaluate	<p>Know how to evaluate and check quality, how to solve problems that may occur, and understand the impact on the final product.</p>	<p>1 Emerging 2 Developing 3 Expected 4 Exceeding</p>
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# Yr8 – Homework menu 2

Teacher feedback

WWW.....

EBI....

	1	2	3	4
<b>Merit</b>	<b>Merit x 2</b>		<b>Distinction</b>	





## Task 3b – my final Tinkercad classroom

Screenshot 1

Screenshot 2

Full explanation...



	ACRE	Assessment and feedback
Design	Understand what makes a successful design and apply this knowledge to improve ideas.	1 Emerging 2 Developing 3 Expected 4 Exceeding
Make	Know the correct types of software to use, why they are most suitable for the job and how they enable precision and quality.	1 Emerging 2 Developing 3 Expected 4 Exceeding
Evaluate	Know how to evaluate and check quality, how to solve problems that may occur, and understand the impact on the final product.	1 Emerging 2 Developing 3 Expected 4 Exceeding
Technical knowledge	Know and understand scale and measurement.	1 Emerging 2 Developing 3 Expected 4 Exceeding
	Adapt and convert measurements to create and use suitable scale and apply this knowledge and understanding.	
	Know the difference between CAD and CAM, and understand how they can be applied to the project and in real life situations.	

Final teacher feedback.....

Emerging

Developing

Expected

Exceeding

WWW

EBI