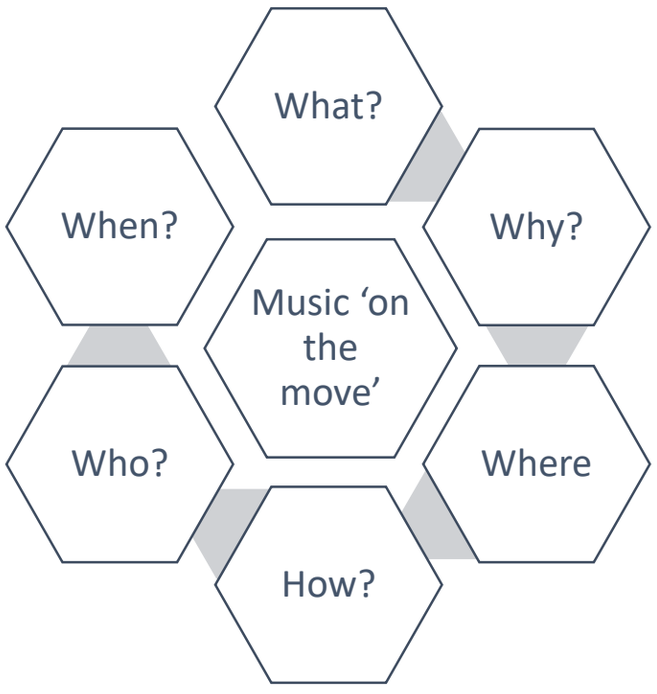
Earphone Wrap:

Remote Learning Work

Project	Earphone wrap

Task 1: Task analysis. Young adults often listen to music or watch videos from a mobile phone or tablet especially ‘on the move’. Using your knowledge of listening to music in this way as inspiration create a design for keeping trailing wires safe and stored.

Use the space below to develop your thoughts.



Research	Images of relevant products to the context with notes

Task 2: Mood board. Collect a variety of images and ideas that could help you. This could vary from music equipment and earphone styles as well as shapes that wires could be wrapped around. Add notes to explain and organise you thoughts on the images.

Design Brief	Write a design brief for your project

Task 3: Design Brief (What do you intend to do in this project to meet the needs of the client or user)

Example sentences:

I am going to design and make _____.

(Insert target market) needs this because

_____

_____.

My design must _____ because _____.

I will use the colours _____ in my work because _____.

Product Analysis	Choose a product from the internet and analyse it

Task 4: Product Evaluation. Analyse the earphone wrap in the centre of the page. There are categories in which you should be mainly looking at listed. Try to be as impartial as possible except in the opinion box.

Style/Looks (Aesthetics)	Materials	Durability
Cost		Opinion
Safety	Environment	Target Market

Design Ideas

Task 5: Initial Ideas. Create a page of initial ideas (6 designs minimum) for your earphone wrap design. Use the annotation help sheet on the next page to help you evaluate the design. Render your designs (Colour to look like the material it is made from).

How to annotate a design idea

Your design idea drawings do not always give the reader all the details you have thought about, by adding annotation you can share your whole idea and give details about areas you can't see.

Key Language in red

Will this product be safe? How can you test this?

Add size and Dimension information

What Materials will be used and why?

What colours are you going to use?

What is the purpose of the product? Is this an effective product (does it meet the requirements of the Brief and Specification?)

What is the Environmental Impact of the product? (recycled materials? could it be recycled after use?

Do you think this is a good design?

Good points and bad points

What is the cost of the materials required if known?

Is it Ergonomic? How does/ will a human use it

How could it be made?

Packaging Ideas

Task 6: Packaging mood board and analysis. Use the space below to find examples of blister packaging and other packaging designs out there. Think of the main components required by packaging and that you can see on most packaging. On the next page complete a design for your earphone wrap packaging. Don’t forget to include the main features you have identified.

Main Features of Packaging

-
-
-
-
-
-

Packaging

Front Design:

Back Design:

Polymers	The hot glue gun

https://www.youtube.com/watch?v=f3BjWvTT9Ro

https://www.youtube.com/watch?v=_6xlNyWPpB8

Task 7: Watch the two YouTube links about plastic production and the lifecycle of plastic.

Polyethylene or **polythene** is the most common plastic, with around 80 million tonnes being produced annually. Its primary use is in packaging (plastic bags, and films as well as containers including bottles, etc.). There are many kinds of polyethylene with different melting points. **Polyethylene** is a **thermoplastic**. **Polyethylene** is not easily **biodegradable**, and so accumulates in landfills. We are using **Polyethylene** with a melting point of between 85°C to 150°C

Challenge: Give 2 examples of how consumers can avoid contributing to plastic being put into landfill.

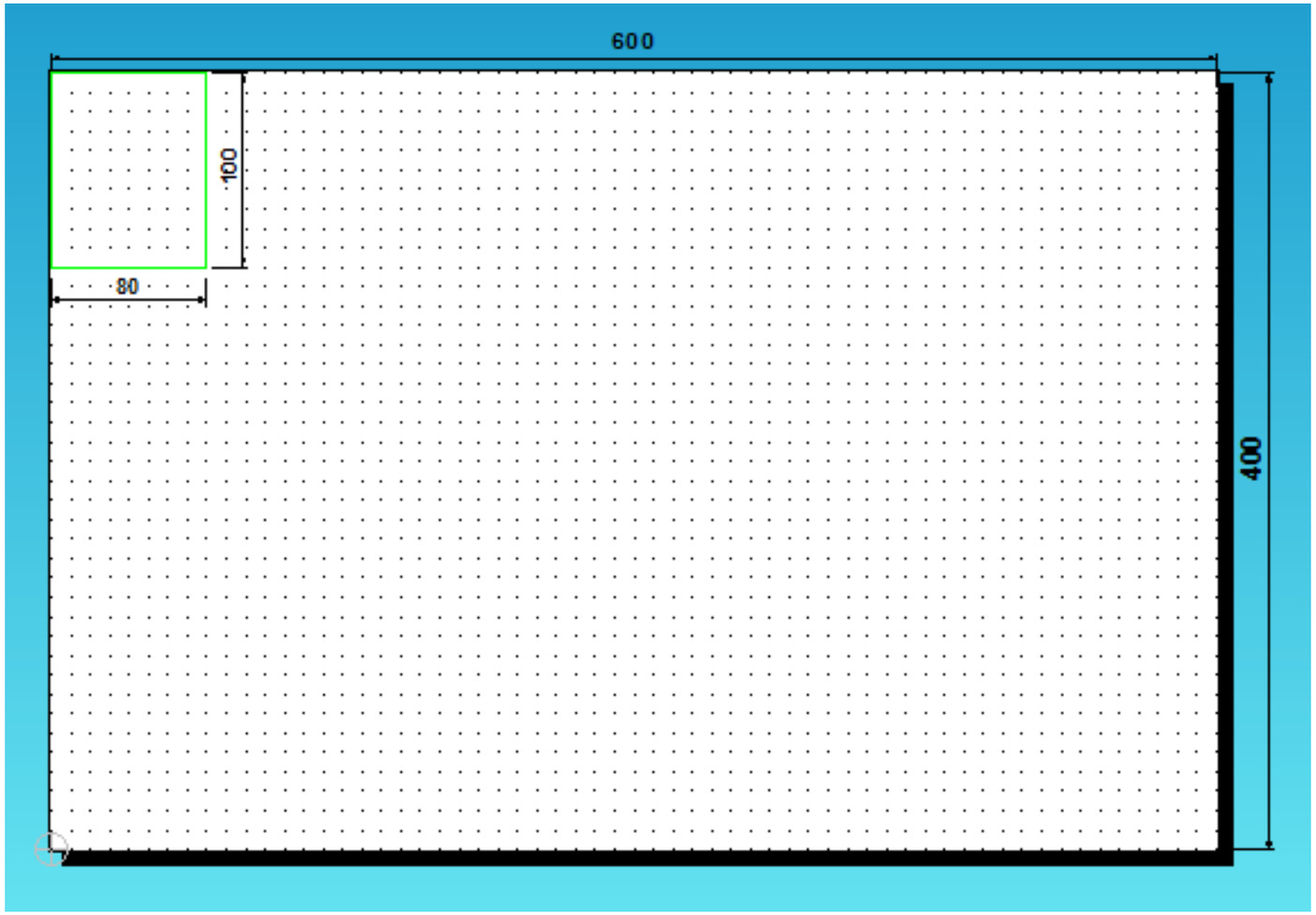
Hot-melt adhesive (HMA)

Hot melt adhesive, also known as **hot glue**, is a form of **thermoplastic adhesive** that is comm
sold as solid cylindrical sticks of various diameters designed to be applied using a hot glue gun.
gun uses a **continuous heating element** to melt the plastic glue, which the user pushes through
gun with a mechanical trigger mechanism on the gun. The glue squeezed out of the heated nozz
initially hot enough to burn and even blister skin. The glue is tacky when hot, and solidifies in a fe
seconds to one minute.

Extension: State 3 safety points for use of a hot glue gun.

Task 8: Maths Tasks

Core: Assuming there is at least a 10mm gap between each earphone wrap. How many earphone wrap templates can we fit on the laser cutter at once?



Core: What is the area of one earphone wrap template?

Challenge: Using your total from the previous question calculate the total area of the acrylic that will be thrown away after the earphone wrap templates have been taken out.

Area = Height x Width

Core: Each set of earphone wrap templates cut on the laser cutter use a sheet of acrylic 600mm x 400mm.
This costs £6.23 per sheet and produces 50 earphone wraps.
What is the cost of each template?

Task 9: Maths

Core: This is not all the material cost as the **hot melt adhesive (HMA)** costs:-

- 12p per glitter glue stick
- 8p per plain coloured glue stick

It is estimated that each earphone wrap uses half a glue stick each time.

How many glue sticks would you need to make the 50 earphone wraps you have cut out?

If you made them all out of glitter glue what would be the cost of glue used?

If you made them all out of plain coloured glue what would be the cost of glue used?

Challenge: The wastage from injection moulding is 10% of each glue stick used.

What is the cost of this waste:-

- For each glitter glue stick?

- For each plain coloured glue stick?

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Task 11: Alessi produce a large variety of products. Look through the website to find products that you find interesting and place them below. https://www.alessi.com/gb_en/?gclid=EAIaIQobChMIh8zg6OCo6AIVwbHtCh3cuA9iEAAYASAAEgKMUfD_BwE&gclsrc=aw.ds

Use influence from the style of Alessi to design a range of products in your home. Look around your home for inspiration in the products that you can design. You can do these designs on the next page.

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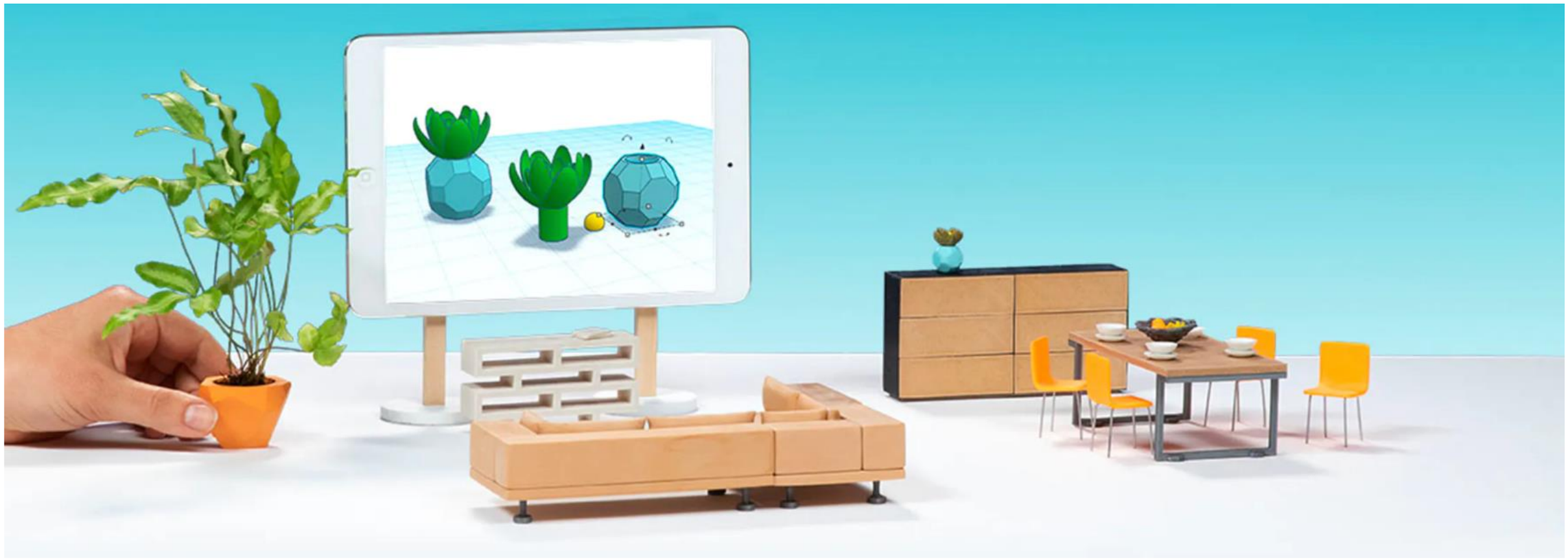
https://www.tinkercad.com/

Task 12: Work through the TinkerCAD tutorial using the link above. Post evidence of some of the stages on the next page.

Extension: Follow the animal tutorial to make an animal of your choice.



Tutorials:

https://www.youtube.com/watch?v=60xfIu-lqAs

https://www.youtube.com/watch?v=GcD0vKjoUyg

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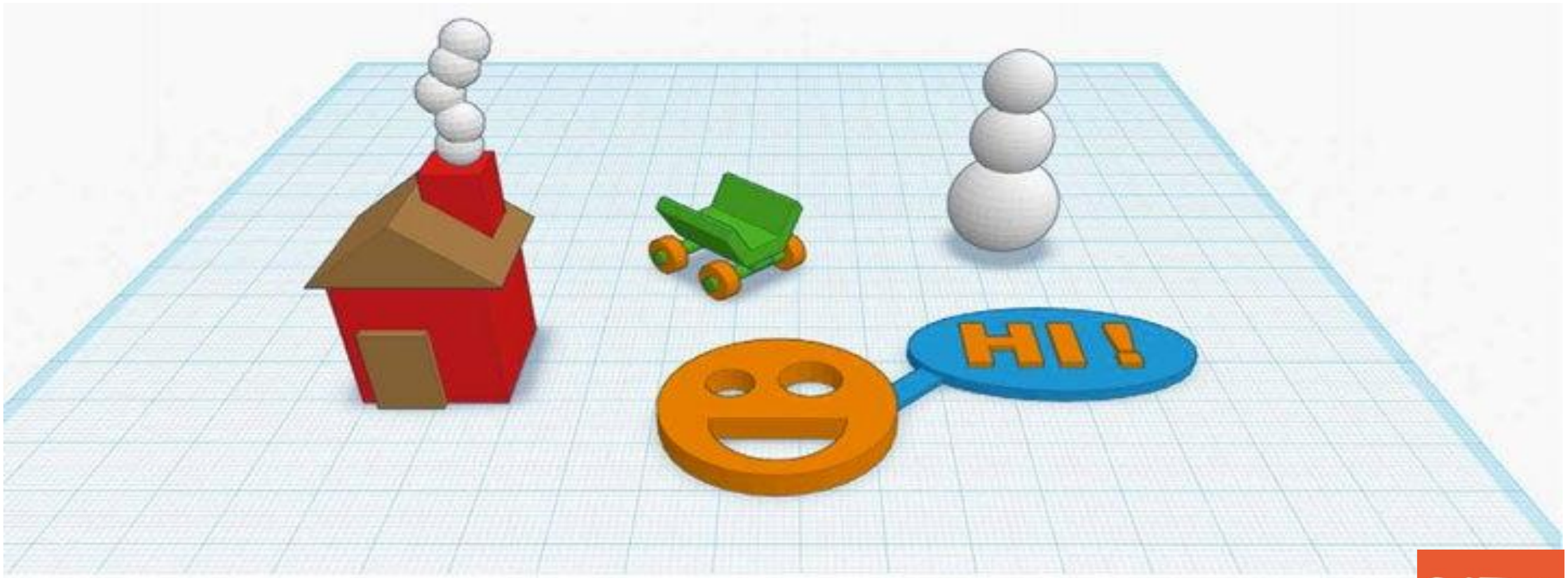
https://www.tinkercad.com/

Task 13: Use TinkerCAD to create some of the designs that you have created in task 11. Present these designs on the next slide.

Advanced tutorials: https://www.youtube.com/watch?v=qaCCji-nLVc, https://www.youtube.com/watch?v=2JFxtUIOnEI&list=PL90LC6zq_Lzf9tHyFPzX_9OA35BFTfEBs



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