Name: _____

An tSraith Shóisearach do Mhúinteoirí

Junior CYCLE for teachers

Elective CPD 2020/2021

Tinkercad Workshop: Cloud-based CAD

Graphics –
www.curriculumonline.ie

Specification

Ionad Oideachais Mhuineacháin

An Roinn Oideachais
Department of Education

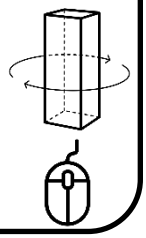
www.jct.ie

Tinkercad

Notes

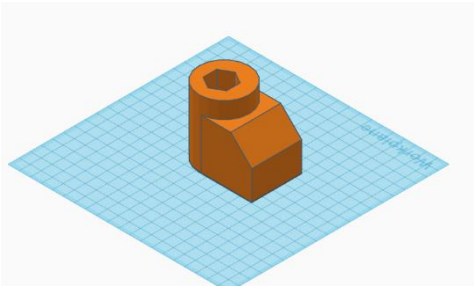
Tinkercad Challenges:

Outline using sketches and annotations how to complete the following navigation commands.

Rotate/Orbit	Zoom	Pan	Toggle Views
			

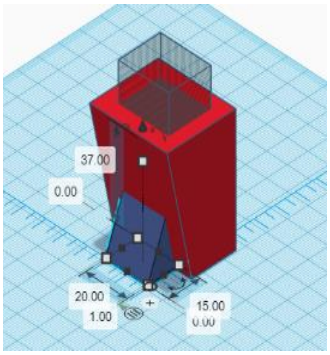
Challenge 1:

Create a similar solid to the image shown below. Use your own dimensions for this model.



Challenge 3:

In a multicomponent object, how do you get the ruler to dimension a single component?



Challenge 2 – Modelling challenge

Shown are four everyday objects. For each, sketch the geometric objects needed to create the model and using Tinkercad model a representation of the object.

Note: *Pay attention to the proportion of image when sketching and modelling.*

Question 1

Traffic Cone

Question 2

Coffee Mug

Question 3
Microphone

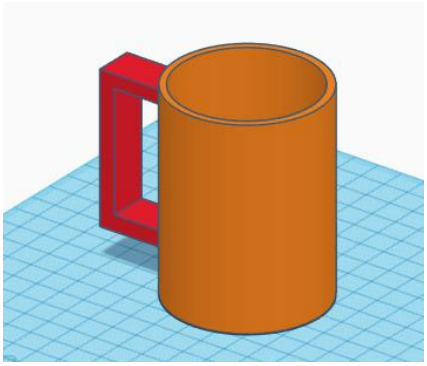
Question 4
Knife block

Notes

Part 3 – Control, accuracy, and additional features within Tinkercad

Challenge 4:

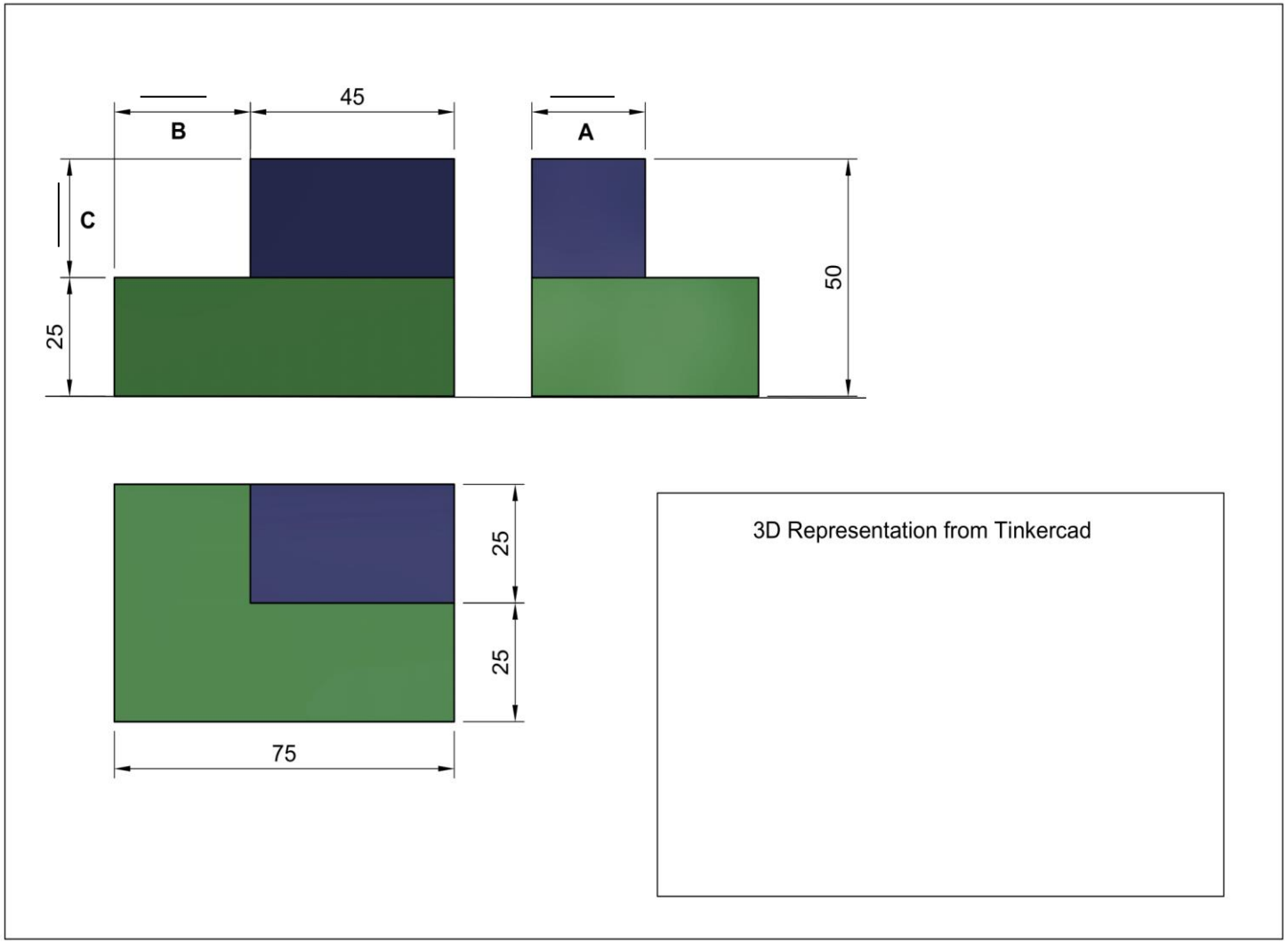
a). Create a model showing concentric circles using two cylinders.



a). Create a model showing eccentric circles using two cylinders.

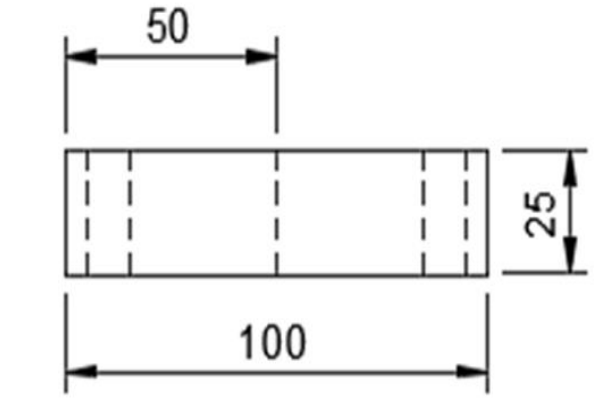
Align challenge 5:

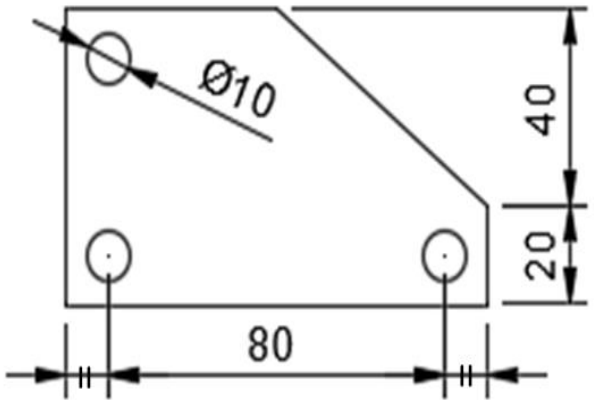
Shown below is an orthographic projection of a geometric solid. **Accurately** re-create this model in Tinkercad using the align feature.



Ruler challenge 6:

Shown below is an orthographic projection of a geometric solid. **Accurately** re-create this model in Tinkercad using the ruler feature.



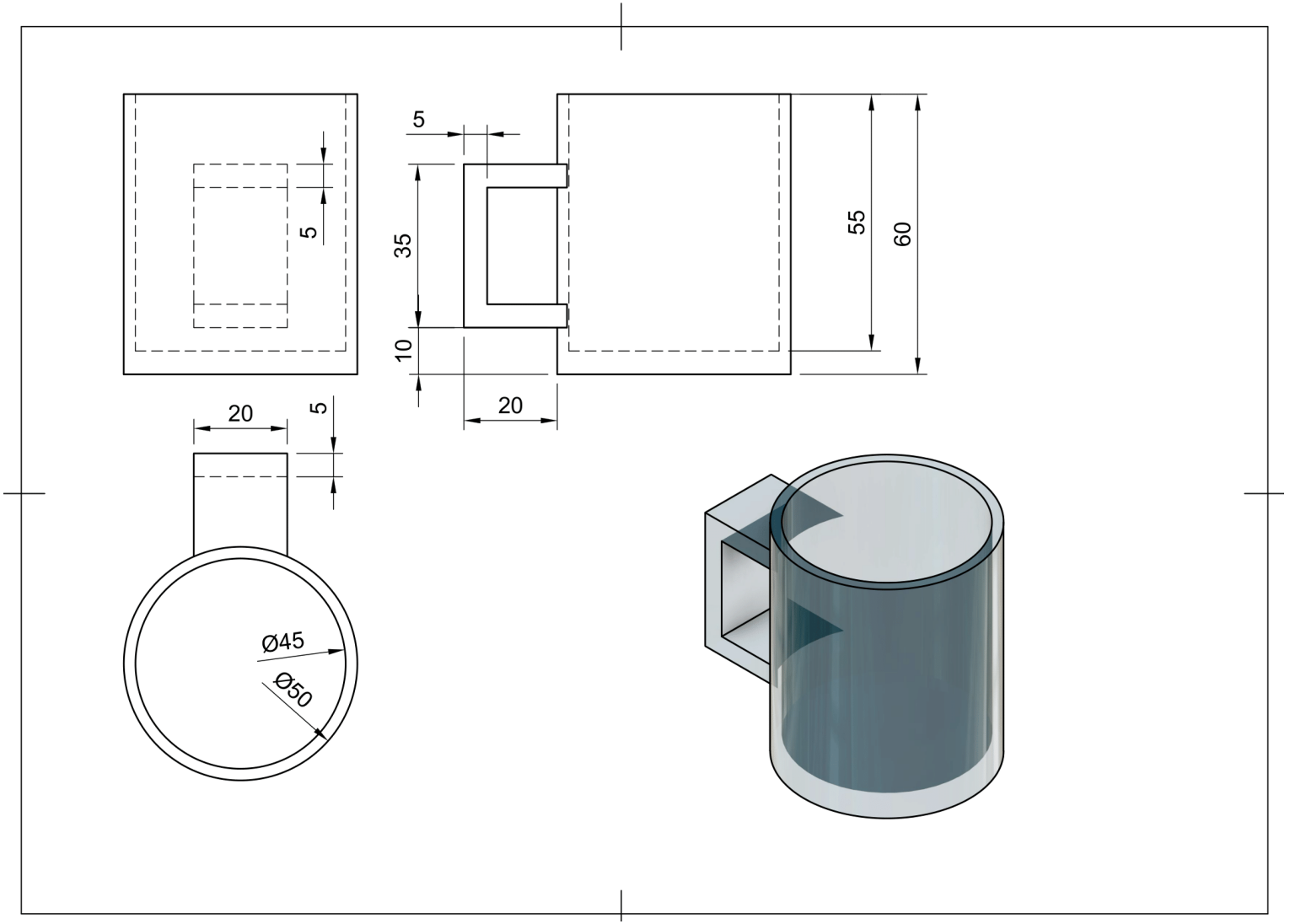


Note:

All holes are equal and equidistance from objects edges.

Combined accuracy challenge 7:

Shown below is an orthographic projection of a cup. **Accurately** re-create this model in Tinkercad using the features you have learnt during this workshop.

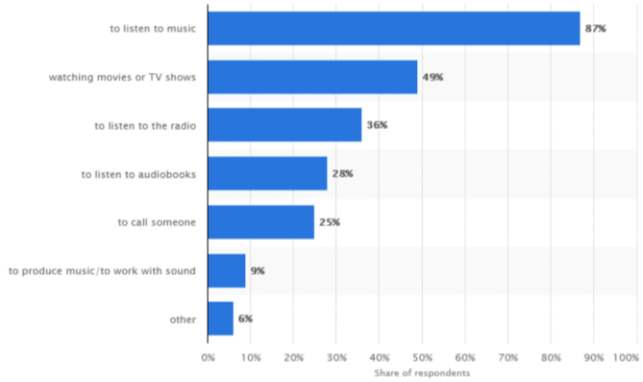


Headphones

People use headphones to listen to digital content on a daily basis. Most people have some sort of headphone or in-ear earbud. Below is an interesting fact around headphone production in 2018.

"In 2018, more than 1 million headphones were sold per day which translates to almost 13 headphones per second; this is expected to increase by two-fold by 2024"

- https://www.prnewswire.com/news-releases/global-earphones-and-headphones-market-to-reach-values-of-36-billion-during-the-period-20182024--market-research-by-arizton-300795642.html



According to a 2017 survey, 87% of respondents use their headphones to listen to music.

A graph showing the results of the survey is shown on the left.

Fig.1 *— https://www.statista.com/statistics/696862/uses-of-headphones-in-the-us/*

Design Challenge

Students are tasked with designing and modelling a **headphones holder** to be used in a suitable space dependant on where and when they primarily use their headphones. An example of such an area is a home office space shown below.

What are the constraints of the task?

- Time?
- Skills I want to develop or explore?
- What other questions do I need to consider?

https://www.pxfuel.com/en/search?q=office+chair&page=4

SCAN FOR A POSSIBLE SOLUTION

Use some of the prompt questions from the "My Design Guide" on the right.

RESEARCH – The search for new knowledge

Discover

Think broadly

What do you need to know more about?

When do I use headphones? Where do I use them?

How could my headphones be stored?

Where can I look for more information? Are there other sources?

DECISIONS – Making decisions about your project

Define

Make decisions

How might I organise my project and record the decisions I make?

Are there other features it could include?

What skills might I need and use to create a solution?

How much time is available for the project?

DESIGN IDEAS – Explore solutions

Develop

Think broadly

What method of representation my ideas will I use?

Could I make a prototype to communicate my idea?

Have I shared my ideas with someone else?

Have I communicated my thinking and decisions?

FINAL DESIGN – Delivering a solution

Deliver

Make decisions

Have I time to make my solution?

What have I learned while making the project?

Have my knowledge and skills developed? If so, how and what have I learned?

What aspects of the project did I enjoy and find challenging?

This resource was created to support a Professional Development workshop facilitated by JCt4 during the 2020 - 2021 school year and sits within the context of the discussions that took place during this workshop.

Design Challenge:

Answer the following questions in relation to the picture shown.

- What problem exists?
-Why does this problem exist?
-Why is a solution needed?
-What solutions already exist?
- Can the proposed solution be used in multiple places/ have multiple uses?

Research:

Design:

Reflection

An tSraith Shóisearach do Mhúinteoirí

Junior CYCLE for teachers

Contact Details

Administrative Office:

Monaghan Ed. Centre,

Armagh Road,

Monaghan.

www.metc.ie

For all queries please contact:

info@jct.ie

Follow us on Twitter:

@JCforTeachers

@JCt4ed

Join our mailing list

Mailing List

Director's Office:

LMETB,

Chapel Street,

Dundalk.

Key websites:

www.jct.ie

www.curriculumonline.ie

www.ncca.ie

QR code - Feedback form

Feedback