

The suite of Technology Subjects

Student Challenges - 18th May



Applied Technology



Engineering



Graphics

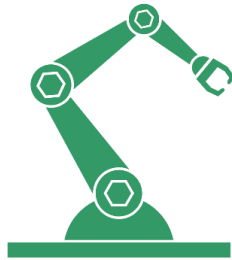


Wood Technology



Applied Technology Challenges

CHALLENGE 11



Robots can perform tasks in areas such as manufacturing, in health care and in surveillance. Modern robots often rely on some form of Artificial intelligence (AI) to perform these tasks.

1. What is your understanding of AI and how can it enhance the performance of robots?
2. Robots can also assist in performing household tasks. Make a model of a robot that could assist you or your family in your home.

Links which might help in completing this challenge:

Robotic dog: <https://youtu.be/2DJmIjKtVkA>

Robotic cleaner: <https://www.youtube.com/watch?v=VPNQxulK4mE>

CHALLENGE 12



One dark night in 1933, Percy Shaw was driving his car when his headlights reflected in the eyes of a cat on the side of a road. This experience inspired him to invent reflective road markers. The company Percy Shaw founded in 1935 still makes over a million 'Catseyes' every year.

1. Research two inventors of your choice and consider the positive impact their inventions have made to society.
2. Create a poster or a presentation to display your research findings for your chosen inventors.

Links which might help in completing this challenge:

Be inspired:

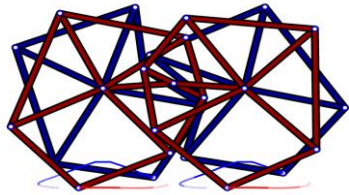
<https://www.jamesdysonfoundation.co.uk/resources/design-icons/catseyes.html>

More inventions: <https://www.history.com/topics/inventions>



Engineering Challenges

CHALLENGE 11



Mechanical linkages are commonly seen in numerous engineered products. A mechanical linkage allows two parts to move freely in a specific way. The connection between the linkage is known as a mechanical joint.

Create your own extendable scissor grabber which can lift various objects. **Test** the extendable scissor grabber on objects of different shapes, sizes and weights.

Links which might help in completing this challenge:

Follow this [link](#) to see a simple example of an extendable scissor grabber.

Check out this [2-minute video](#) to see linkages being used in an everyday real-life application.

CHALLENGE 12



An Engineer has many responsibilities and being able to solve problems is one essential skill. Problem-solving is the act of identifying a problem, understanding the main issues and finding a simple solution to that problem.

Identify a minor problem in your home or garden and **develop** a simple solution to this problem. You may **communicate** your solution via a sketch, proto-type or a clear explanation.

Links which might help in completing this challenge:

Click this [link](#) to get more information on how to “Think like an Engineer”

[Here](#) a design Engineer discusses the importance of “Defining the Problem”



Graphics Challenges

CHALLENGE 11



“The UEFA Europa Conference League will be the third UEFA club competition and run alongside both the UEFA Champions League and UEFA Europa League. It was first approved by the UEFA Executive Committee in December 2018. The competition is set to get under way in 2021/22 and run throughout the 2021–2024 cycle at least”
– www.uefa.com

Design a trophy for this new competition using shapes you have encountered in Graphics.

You can sketch your solution in 3D and perhaps model it in Tinkercad.

Links which might help in completing this challenge:

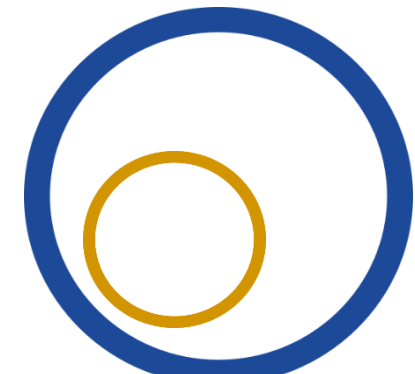
A basic introduction challenge for Tinkercad can be found [here](#).

A basic introduction to grouping geometric solids in Tinkercad can be found [here](#).

CHALLENGE 12



Concentric



Eccentric

Concentric circles share the same centre point, whereas eccentric circles do not.

How many examples of each can you find? Create a collage of your examples.

Here are some examples that may help with this challenge:





Wood Technology Challenges

CHALLENGE 11



Most trees are now in full leaf and summer is on the way. Use the camera on your mobile phone to take pictures of the leaves on the trees in your garden or your street.

Use the links below to help you to identify the trees.

Sketch out some of the leaves and note down something you have learned about the type of tree or timber it produces.

Links which might help in completing this challenge:

Check out this webpage from the Woodland Trust and the printable tree ID guides [Click here for link](#)

Try out this [tree identification app](#)

CHALLENGE 12



There are some basic tools and equipment every household should have for DIY jobs or maintenance emergencies.

Make a list of what you would include in a DIY/home emergency kit.

Design an artefact to store these items.

Links which might help in completing this challenge:

Check out these [websites](#) for some help on deciding what tools/equipment to include

Technologies teachers ...

These activities are designed and collated for teachers who may have to engage with remote teaching. These activities only offer, as a suggestion, some possible tasks which could be completed by students.

Teachers knowledge of their own students' context should inform their decision around which activities would best engage their students.

We would like to showcase student challenge responses each Friday on our Jct4 twitter page.

If you would like any of your student's responses featured, please send images of this work to the following Jct4 email: michael.lynch@jct.ie



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