# Applied Technology

Students engaging with learning from home

# Applied Technology Challenges

## CHALLENGE 1

Preparing and cooking food is an everyday task. However, for some people this task can be quite difficult. Is there a way we could improve this? Design a device or system to help someone prepare their food, with or without assistance. Sketch or model your design solutions and remember to record your thoughts.

Links which might help in completing this challenge:

For interesting ways to use mechanisms to prepare food click  here

See how a company OXO design a range of cooking utensils here

## CHALLENGE 2
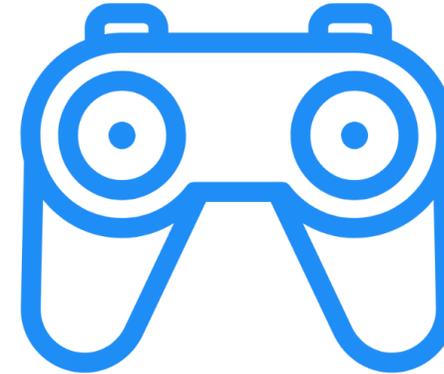
Find a control device in your house. Think about what you like and dislike about using it. How could you improve it? What would you add or take away and why? Can you make a model of your idea?

Links which might help in completing this challenge:

Explore the design of the Xbox controller design lab here

Research how Sony created their video game controller here

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## CHALLENGE 3



Recently, extra shipments of personal protective equipment (PPE) arrived in Ireland from China. Some of this equipment can be reused if cleaned correctly.

Research how items can be sterilised for reuse. Design a method/process/device to sterilise this equipment before re-use by medical staff. Display your design and research in any appropriate format.

Links which might help in completing this challenge:

To find out more about PPE click here

How can schools support frontline medical staff? Click here to explore one way your school can help.

## CHALLENGE 4



Products use a variety of smart technologies to improve our lives.

Identify one smart technology in your home.

Research how it works and how it improves our daily lives.

Present your research in any appropriate format.

Links which might help in completing this challenge:

For a look at a smart technology improving everyday life click here

Consider the positive and negative impact of smart technologies on our lives. Watch this video to help you form your opinion.

# Applied Technology Challenges

## CHALLENGE 5
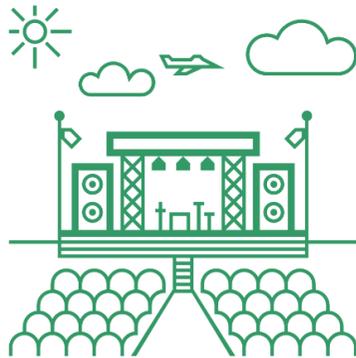
Entertainment events are becoming more interactive using Virtual Reality (VR) and Augmented Reality (AR) to enhance people's experience.

Did you ever consider how these events can happen and the technology involved? Research the difference between VR and AR technology.

Choose an entertainment event and suggest how you could enhance this experience using technology. Include any digital hardware and software you could also use.

Links which might help in completing this challenge:
Here are some videos of entertainment events happening virtually:

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

https://www.youtube.com/watch?v=NBsCzN-jfvA

## CHALLENGE 6

Tired of staying inside? How would you design and make a tree house or similar outdoor shelter? What structure would it have? What materials would you use? Justify your thinking.

Perhaps consider making a prototype model first. How can making a prototype help you learn?

Links which might help in completing this challenge:
https://www.youtube.com/watch?v=WRfJyXks09o

Did you ever consider how manmade structures can be inspired by the natural world? Watch the video below to find out more:
https://youtu.be/WHgeMDT0tAg

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## CHALLENGE 7

The tourism trade is very popular in Ireland. Companies are coming up with new and exciting ways to promote their attractions and to enhance the experience for tourists.

Many companies are using interactive technology to do this. One interesting emerging technology is the use of Bare Conductive paint which can transform the way we can create electric circuits.

Design a solution to promote a tourist attraction of your choice. Using the videos as an inspiration, detail how you could possibly use the paint to enhance the experience for tourists. Outline all the technology you might use to make this happen.

Links which might help in completing this challenge:

https://www.youtube.com/watch?v=pVvEQUbhar8

https://www.youtube.com/watch?v=H1ZWqRPG2xk

## CHALLENGE 8

**Contactless payment systems** are being widely used during the COVID:19 pandemic. These systems can use near field communication (NFC) for making secure payments.

1. Name three applications (uses) of contactless payment systems?
2. Can you suggest some positive and negative impacts of using contactless payment systems?
3. Using notes/sketches, explain how NFC works?

Links which might help in completing this challenge:

To learn more about NFC technology, click on the link below.

https://youtu.be/vtCJewBisBs

# Applied Technology Challenges

## CHALLENGE 9



**What? So What? Now What?** Reflecting on a regular basis helps you to learn better and make your learning experiences more enjoyable. Select a project or a task you completed this year.

1. What did you learn and how did your skills develop?
2. What did it tell you about your strengths and gaps in your understanding?
3. What will be your next steps to improve your knowledge, skills and understanding?

Create a poster or a mind map to communicate your reflection of your learning through this project or task.

> Links which might help in completing this challenge:
> To find out more about reflection watch the following video https://youtu.be/vGyjF9Ngd8Y
>
> Visit https://coggle.it/ to learn more about creating mind maps.

## CHALLENGE 10



'The force strong in this one is'

May the 4th, affectionately known to Star Wars fans worldwide as, 'May the force be with you', coincided with the general release of the movie The Rise of Skywalker.

Many movies, including those in the Star Wars franchise, are now being created using Computer-Generated Imagery (CGI).

1. What technology is used to create CGI?
2. Where is CGI used in every-day life?
3. Create an image, using a social media app, of an object of your choice superimposed onto a background/filter.

Be imaginative!

> Links which might help in completing this challenge:
> This clip can show you how some of your favourite movies were improved using CGI.
> https://www.youtube.com/watch?v=q1QVoGszY6M
>
> Watch the video below to learn how to add backgrounds to pictures https://www.youtube.com/watch?v=1VQmcfl6v5A

# 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=VPNQxuIK4mE

## 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

# Applied Technology Challenges

## CHALLENGE 13

The documentary 'The Last Dance' has just been released in full on Netflix. It boasts an impressive amount of statistics about players and their game. In recent years, advances in *wearable technology* have improved the ways teams gather statistics about players.

1. Choose **one** wearable technology used in sport.
2. Research how this technology works.
3. Suggest **two** other applications of wearable technologies.

Create a presentation or poster on your findings.

Links which might help in completing this challenge:

https://www.youtube.com/watch?v=g6S3gRX7ssE

https://www.youtube.com/watch?v=qObSFfdfe7I&feature=emb_logo

## CHALLENGE 14

Designers and engineers often dismantle a product to find out more about how it was made. This process helps people to find out more about the materials used, how components work and how parts are designed and assembled.

1. Choose an old household item you can dismantle. **Please ensure that it is broken or no longer in use**.
2. Sketch the main parts of your chosen product which you have dismantled.
3. Make notes on your sketch to explain the parts of the item and details of how to assemble/disassemble the item.

Links which might help in completing this challenge:

https://www.youtube.com/watch?v=-odpPU6lSAE

https://vimeo.com/9075206

# Applied Technology teachers …

These activities are designed and collated for teachers whose students may have to engage with learning from home. 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. If students are engaging with learning from home, assessment and reporting procedures may need to be reconfigured to reflect this circumstance.