STUDENT GUIDE: SUITABLE FOR AGE 11-14

How can we live smarter?

3 There's an app for that

DESIGN WORKSHEET 3

Screen title:

Notes

STEM CLUBS

NUMBER 1 FOR STEM

CLUB LEADER GUIDE: SUITABLE FOR AGE 11-14

How can we live smarter?

4 Smarten up your life

Objective

In this activity students discuss how advances in the kitchen might affect the future and design their own product that has all the smart features they can think of. They will then try to sell their product to the CEO of an important 'smart' company using a PowerPoint presentation.

HEALTH AND SAFETY:

A suitable risk assessment must be carried out by the activity leader and any significant findings recorded: if carried out in schools, guidance from CLEAPSS or SSERC must be used where appropriate.

TOPIC LINKS

- Design and technology: designing a smart product
- Engineering: researching the internet of things

ESSENTIAL SKILLS SUPPORTED

Listening, problem solving, creativity, teamwork

TIME

50 minutes

RESOURCES AND PREPARATION

Students will need to prepare a week in advance (see point 2 in the Delivery section on the right)

- A3 paper
- plain paper
- pencils
- pens
- markers
- optional: computer with internet access for research

DELIVERY

1. Create a class mind map of the things they would like to see smart in their daily lives. What kinds of smart products could make different areas in their life easier? A case study for the students is the smart fridge.
2. Students need to prepare for this activity. For one week, they will need to do a study on all the tasks that happen at home in the kitchen. Who does them? How often? How long does it take? After their study, they need to bring their results in to analyse.
3. Ask if they can think of anything about their kitchen at home that could be easier. In the future, do they think going to the food shops will be necessary? How could this chore be eliminated? Students list the biggest chores (in terms of time or nuisance) and their ideas of how these could be eliminated.
4. Introduce the activity: in groups, they will need to research and mind map existing and non-existing features for the smart product of their choice that they believe is needed to eliminate a chore of their choice. Their end-product will be to create a PowerPoint presentation which they present to their peers. The context is that they are advertising a new product for development to the CEO of a 'smart' company they work for: 'SMART Creations'.
5. Assist students as they work through the student guide.

TIPS

- Give each of the team members a role before they start their team mind map. For example:
  - engineer: focuses on the technical aspects of the activity
  - designer: focuses on making their poster and presentation stylish and appealing
  - marketing specialist: Focuses on thinking from the point of view of the audience and the CEO
  - speaker: responsible for presenting their end-product

DIFFERENTIATION IDEAS

Support: let students design their futuristic smart fridge and build on what they learnt from the case study. Start with basic features that their fridge already has and build upon those. Or let students design a smart product that can be used to get rid of the chore of their choice.

Challenge: assign students a client that they must keep in mind during their designs. For example, what would they need to consider if they were designing for an elderly client, someone with mobility issues, etc?

EXTENSION IDEAS

1. Investigate how they can put their ideas into action. How can student create smart devices using their own dumb stuff? (see Useful links below). Students could search the internet to find out what the possibilities are for them to smarten up their life.

USEFUL LINKS

- Wired article: How to build a smart home with your own dumb stuff
  www.wired.com/2015/03/build-smart-home-dumb-stuff/
- Smart refrigerators illustrate why we need to define 'smart', by Vivint Smart Home
  www.vivint.com/resources/article/smart-fridge
- Why buying a smart fridge is a dumb idea, How-To Geek
  www.howtogeek.com/260896/why-buying-a-smart-fridge-is-a-dumb-idea/

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Your challenge

It seems like these days everything is becoming technologically 'smarter'. How about our homes? Smart fridges will allow us to see on our phones exactly when we need to buy more milk or when our eggs will be out of date. Are there other smart devices we can add to our homes?

YOUR TASK **Design, sketch up, and sell your own futuristic smart device to the CEO of the influential company 'Smart Creations'.**

WHAT YOU NEED TO DO

Phase 1 – research and mind map

For one week, study all the tasks that happen at home. Who does them? How often? How long does it take? Where could a smart device or new feature be useful to make one of these easier or more pleasant? Create a mind map with your ideas.

Phase 2 – decide on your two big ideas

What are the two features that have come out of your mind map that you are the most enthusiastic about? Name and describe each feature briefly. In your description, explain what the feature is for and how it would work.groups follow them?

FEATURE 1:

What does the feature do? How does it work?

What are the unique selling points of my product? (e.g. What will make people want to buy it?)

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FEATURE 2:

What does the feature do? How does it work?

What are the unique selling points of my product? (e.g. What will make people want to buy it?)

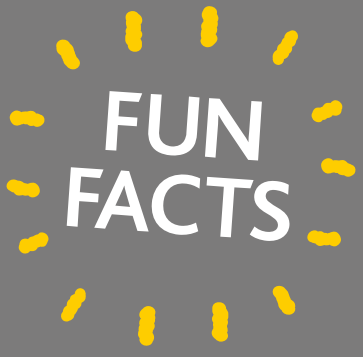
Phase 3 – sketch it up

On plain paper, sketch up some different versions of what your final design for the two features should look like. Make notes.

Phase 4 – create a presentation

Next, produce a presentation to convince the CEO of the smart company 'Smart Creations' to start making and selling your product. Consider the following points as you work on this:

- what makes your product appealing or sets it apart from others
- how does this feature make the buyer's life easier
- what materials and technology would they need in order for it to have this function
- what is your target audience? (Everyone, people who cannot go to the shop by themselves, young people, older people, very wealthy people, or maybe very technological people?)
- is this a very expensive feature to build



1. Smart fridges connected to the internet should get regular updates, or they might stop functioning properly. There have been instances in the past where this caused trouble for (maybe-not-quite-so) smart fridges.
2. Smart devices are not only useful in households – they are taking over everywhere. The technology involved in nursing today would likely surprise even the most devoted gadget freak. Nurses must increasingly master a host of complex technologies, from smart medical devices to tablet PCs.