

Inspiring innovation: Teacher notes

General

- These resources have been designed so that you can select and adapt to suit your students' teaching needs.
- Each session aims to be roughly 1hr 30min worth of teaching, although this can be adapted to meet the needs of your students. Each session has a printable 'black and white worksheet' at the beginning for the students to make notes on. A list of any equipment/preparation required is also provided.
- At the end of all of the sessions are printable exam style questions that could be used as homework activities, plenaries etc. There is an exemplar answer alongside each question – this is not an extensive set of answers so teacher discretion will be required.

Session 1

- Students will learn and make notes about the different types of smart and modern materials available. This is not an extensive list and the teacher may wish to add further materials
- Print the Smart/Modern Materials slide (slide 6), Design Ideas (slide 7) and print and cut out the Product Cards (slides 27 and 28).
- Students roll the dice to decide on their personal smart/modern materials and a product to design using them.
- Students should be encouraged to think carefully about their stakeholders and their requirements. Students could be stretched to write a design brief/list of stakeholder requirements/specification at this point.
- Using the smart/modern materials and the product cards, students will start producing design ideas for an innovative product that meets the needs of their stakeholders.
- Search for YouTube 'Smart Materials' videos such as: [Smart Materials](#), [7 Strangest & Coolest Materials Which Actually Exist](#), and [New and Smart materials](#).

Session 2

- Students have the opportunity to generate further design ideas/produce design iterations.
- The main slides are hyperlinked from slide 9 – this enables this slide to be put on the board and the students can come out and click on any of the words/phrases to take them to the associating slide. The design challenge is to use the images/words/sounds to generate further creative design ideas for their product using their smart materials.
- Students should be encouraged to keep thinking and annotating about their idea's potential and whether it would appeal to their stakeholders.
- The aim for the end of the session is for the students to get into groups of 2-3 and decide on the winning idea for their group to take forward to the next session.
- Teacher to secretly scan one of the groups ideas to use in Session 4.

Session 3

- This session has been split into two smaller sessions lasting roughly 45minutes each. They could be taught separately or together as required.

Session 3a

- Students have the opportunity to learn about, write notes and relate forms of branding/marketing to their own group's winning product idea.
- Teacher to secretly scan one of the group's logos/slogan/branding to use in Session 4.

Session 3b

- Students have the opportunity to explore the different standards/safety marks/laws involved with the design, manufacture and selling of products and then relate this to their own group's winning product idea.

Session 4

- This session revolves around the idea that the teacher will 'steal' the students' ideas and what are they going to do about it? Teacher needs to have scanned and inserted one of the team's winning idea for slide 6 and another team's branding for slide 19.
- Students learn about all forms of IP and then start to relate this to their group's winning product idea.
- Patents featured are Rollercoaster and Guitar Tremolo Arm. You may wish to choose other examples relating to your students' interests.

Business Half-Day Video

The resources have been tested out in two schools and a video illustrating the sessions delivered is included in these resources. The half-day used Sessions 3a and 4, and the PowerPoint used on the days is also included. Students had previously developed designs for products using smart materials using Sessions 1 and 2.

The half-day was delivered over a morning with Year 9 students with the following approximate timings:

Set up

Groups of three or four students

Large sheets of paper for each group to:

- a) include the title and very brief summary of their design
- b) record answers to quizzes
- c) use in the presentation at the end with a small prize given for the best team overall

9.00am Introduction and aims of the day including a brief recap of previous lessons and the work done

Quiz – Name the celebrity and their brand/product

9.30am (Slides 5 – 10 from Session 3a)

Students look at their previous designs

Design their own slogan and logo – 4x4 design strategy

Student presentations of designs and slogans – front of class

10.30am BREAK

10.50 (Slides 11 – 14 from Session 3a) – which film and product

Choose a celebrity to endorse their product

11.45am (Slide 6 from Session 4)

‘So I had an idea’ – Steal one of their ideas and present it as your own

(Slide 8 from Session 4)

Discussion as a whole group – responses

(Slides 9 – 39 from Session 4)

Videos and discussion

(Slides 40 – 41 from Session 4)

‘How could you protect your design?’

12.05pm ‘Extra activities to consolidate learning’

Use if time allows

(Handouts: Slides 3 – 4 from Session 4)

Question and answer session – hands-up exercise

12.15pm Group Evaluation and feedback

Student presentations – front of class

12.25 Best team – design, presentation and responses

12.30pm Finish and brief interviews with students

Quiz answer sheets and 4x4 design sheets are included.