



CRACKING IDEAS LEARNING ACTIVITIES LEVEL 1

KEY STAGE 1 (ENGLAND, NI AND WALES)/FIRST (SCOTLAND)

Well done, you've made it this far, why not grab yourself a cup of tea and we'll take you through a number of activities that we've lovingly crafted with the aim to support you in inspiring your children to be extra creative, awesomely inventive, and successfully analytical.

This document details how to use each of the activity worksheets, outlining what and how long you'll need to run the activities, not to mention some handy tips along the way.

For an overview of the whole resource, including more details on how to structure these activities, please read **Introduction to the Resource**.

PATHWAY	PHASE 1		PHASE 2	PHASE 3	PHASE 4		PHASE 5
	Introduction & Finding Everyday Objects 30+ MINS	'Be an Inventor' Design Challenge 30+ MINS	Research an Object 30+ MINS	Design your Object 30+ MINS	Evaluate your Object 25+ MINS	Share your Object 25+ MINS	Enter the Competition 30+ MINS
SPRINT 1 HR	✓						✓
QUICK 2 HR	✓			✓	✓		✓
DAY 3+ HR	✓	✓	✓	✓	✓		✓
TERM	✓	✓	✓	✓	✓	✓	✓

PHASE 1 - WARM UP ACTIVITY: WATCH THE VIDEO

MINIMUM TIME: 5 MINUTES.

MATERIALS: COMPUTER/INTERNET.

LEARNING OBJECTIVE: AN INTRODUCTION TO ALL THE ACTIVITIES.



Before getting started with any activities, show children the introductory **Cracking Ideas** video starring Wallace & Gromit.

This short video will introduce the idea that people spend time designing solutions to problems. More importantly, it will tell children about the challenge they will try to solve – to recreate an everyday object and make it better by coming up with their very own **Cracking Idea!**

aard.mn/CrackingIdeas2016

PHASE 1 - WARM UP ACTIVITY: FINDING EVERYDAY OBJECTS

MINIMUM TIME: 20+ MINUTES.

MATERIALS: BLANK PAPER, PENCILS, SET OF EVERYDAY OBJECTS TO SHOW OR FIND.

LEARNING OBJECTIVE: TO IDENTIFY AND THINK ABOUT EVERYDAY OBJECTS THAT PEOPLE COMMONLY USE.

In this activity, children will identify and think about things they use in their everyday lives. Start by explaining the aim of the activity and what an 'everyday object' is, which is important because they will be making an everyday object better for their competition idea. Explain to the children that they will be finding and writing down (or drawing or recording) some of these everyday objects. You could choose to organise the children in different ways – whole class, in smaller groups or pairs – and facilitate the activity in different ways:

Show or find objects: Bring in and display some everyday objects around the classroom or outside space and ask children to find and list them. Alternatively, for a simpler version, they could look around the room to identify everyday objects in their classroom.

Objects in children's daily routines: Ask children to think about, write down or draw objects they see or use every day. Prompt them by suggesting they think about their morning routine, their journey to school, and what they do at school and at home in the afternoon and bedtime.

Once the children have identified and written down their objects, ask some of them to share examples. Point out that all these objects have been planned and made by someone, often for a particular purpose. If there is time, ask the children to think about the design of 1-2 everyday objects in small groups or as a whole group. Here are some suggested questions for this discussion:

- Who uses it? What do they use it for?
- How would you describe it? What shape is it? What is it made of? Does it move?
- What do they think about it?
- Can they think how it could be made better? What if it was... (Softer? Harder? Smaller? Circular? Had a handle? Had a better name? etc.)

WHAT IS AN 'EVERYDAY OBJECT'?

In the Cracking Ideas competition, an 'everyday object' is an object that has been made or designed by people and that many people commonly use in their lives. They are not natural objects like water or trees and might be different for people from different cultures or places.

TO SUPPORT AND STRUCTURE THIS ACTIVITY, TRY THESE IDEAS:

Bring in and show physical objects to the class to demonstrate an 'everyday object'.

For example, objects from rooms in the house, in school, outside or in the community.

Take a walk around the school to search for everyday objects. Have children take pencils and paper with them and make a list, draw, or take photos of the objects they see. They could also do this at home as a homework task.

Use the projector screen to display photos of different rooms around the house or places in the community. Ask the children to identify some everyday objects in the photos.

Create a chart with four quadrants where each quadrant has a different category related to everyday objects. For example, 'objects in the kitchen or bathroom', 'things you carry in your school bag', 'things to play with.' Use this framework to identify everyday objects, either as a whole-group activity where teachers record answers on a large piece of paper or in smaller groups with separate pieces of paper for each group.

The objects from this activity may become inspiration for later activities and possibly their own Cracking Idea, but tell the children that the objects they enter can be different from those shown or discussed in class. They can recreate any object they choose.

PHASE 1 - WARM UP ACTIVITY: BE AN INVENTOR DESIGN CHALLENGE

MINIMUM TIME: 30+ MINUTES.

MATERIALS: INVENTOR DESIGN CHALLENGE CARD, PAPER AND PENCILS OR MODELLING MATERIALS.

LEARNING OBJECTIVE: TO THINK ABOUT HOW OBJECTS MIGHT BE RE-DESIGNED SO THEY COULD BE USED IN DIFFERENT WAYS AND TO SUIT DIFFERENT PURPOSES.

In this activity, the children will imagine themselves as inventors who can change everyday objects into new and improved ones. It would work well in pairs or individually though they could work in small groups too.

To start, each working group should choose an everyday object they'd like to re-invent, either from their list of everyday objects from the **Finding Everyday Objects** activity or a completely different one. They should also choose or be given an **Inventor Design Challenge card**. Their task as inventors is to try to re-create the object so that it meets the challenge. Emphasise that they can be as wild and inventive as they want to be in creating new objects.

Provide paper and pencils so the children can draw their new object or materials for modelling it, like modelling clay, building blocks, pipe cleaners, Playdoh or aluminium foil.

If there is time, allow the children to share their ideas with each other or the class. Provide these questions to help the children to explain their new ideas:

- What does it do?
- Who uses it?
- How does it work?
- What is the name of your object?

TO SUPPORT CHILDREN WITH THIS ACTIVITY, YOU COULD TRY THESE IDEAS:

- To make the activity more exciting and appropriate for younger children, use the idea of 'magic' for transforming the objects into something new. Bring in visual elements to the activity as well, using the actual objects and providing or making 'magic glasses' or a 'magic wand' that can help transform and change the objects. Have the children imagine they are magic inventors who can use their glasses or wands to magically change the objects, then ask them to describe what new ones they have created. Use verbal questions and answers, drawings or photographs rather than writing to capture their ideas.
- To extend and stretch the children's creativity, hand out 2-3 design challenge cards to each group and have them recreate a single object in multiple ways. This can help them get used to the idea that there are multiple ways that objects could be designed for different uses, and that there may not be one 'right' answer for an object's design.

PHASE 2 - ACTIVITY: RESEARCH AN OBJECT

MINIMUM TIME: 30+ MINUTES (LONGER IF STUDENTS DO EXTENSION ACTIVITIES).

MATERIALS: RESEARCH AN OBJECT TEMPLATE, PENS OR PENCILS.

LEARNING OBJECTIVE: TO ANALYSE THE DESIGN AND USE OF AN EVERYDAY OBJECT AND THINK ABOUT HOW TO MAKE THE DESIGN BETTER.

In this activity, children will examine an everyday object and how it is used. They will be re-creating this object for their final design idea so all members of a group should decide on and think about the same object. It is therefore important that you now organise the children according to how they will submit entries to the competition – work as a whole group, in small groups, pairs or as individuals.

First, children should choose an ordinary, everyday object they would like to improve so that it can help with an existing problem or 'mundane job'. There are different ways to do this. They could choose an object they are interested in or they could stick with and extend work they did on an object in the warm-up activities.

Once they have chosen an object, hand out the **Research an Object** template (one per working group) and explain they will use this to examine the object more. Use or adapt the following instructions for the children:

1. Write the name of the object in the centre circle and add pictures of the object to this circle. The children could draw the object or find and glue pictures of it. To extend this activity, they could do some internet research or find and look at the objects in real life to examine different versions or shapes of the same object. They could also label the drawing and parts of the object.

2. Next, ask the children to think about and write down what the object does, what they like about it and what they don't like about it. They can work with other members of their group to come up with and write down ideas or draw pictures that respond to these questions in the corresponding sections of the second circle of the diagram.

3. Once the children have considered the object and its use, ask them this question: 'How would you change the object to make it better?' They might have different ideas about what 'better' means, and this is fine. It might work better, have a better shape or form, solve a problem better, smell better, be made from a different material, be easier to use, more fun or help people do things better. Give the children 5-10 minutes to discuss this and to write down their ideas of how to make the object better in the box at the bottom of the template. This is the start of your students' **Cracking Ideas!**

TO SUPPORT STUDENTS WITH THIS ACTIVITY, YOU COULD TRY THESE IDEAS:

- Refer back to warm up activities the children worked on, for example, they could use the list of everyday objects or some of the prompt materials from these activities.
- Encourage children to think about an everyday situation that is a problem or annoying for them and what object could be made better to help with that situation or how their chosen object might be transformed or changed to help with that situation. Ask questions like 'What if it could help you...?' or 'What if it had... or looked like...?'
- Use the **Be an Inventor Challenge cards** to prompt some new ideas about how the object might be redesigned.

EXTENSION ACTIVITIES

If you wish to expand or adjust this section you could consider:

Interview each other: Children could ask each other the questions on the template to collect other perspectives on the same object. Older children can also create and ask new, additional questions. ('How do you use it?' 'How could it be designed better?')

Interview the object: Children could also interview and ask questions of the object. It might seem strange to interview a thing, but this is a creative way to see the object in a different way and think imaginatively.

Provide or choose from the following questions, or have them develop their own. Older children may be able to also write down the answers. After they have completed the interviews, ask them to discuss and write down or draw how they might now recreate the object, given what they have learned about it:

- What is your name?
- What do you look like?
- What do you do?
- Who uses you?
- What is your favourite thing to do?
- What do you wish you could do that you can't?
- What would you like to be when you grow up?

CURRICULUM LINKS FOR PHASES 1 AND 2:

England – Design and Technology

KS1: Explore and evaluate a range of existing products.

Northern Ireland – The World Around Us

Foundation (strand 3): Place – To recognise some basic features of their home and to recognise the different materials used every day.

KS1 (strand 3): Place – About the properties of everyday materials and their uses.

KS1 (strand 4): Change over time – How everyday items have changed over time.

Scotland – Curriculum for Excellence, Technologies area

First: In relation to the Key Concept – Awareness of technological developments (past, present and future), including how they work.

I can explore the latest technologies and consider the ways in which they have developed.

Wales – Foundation Phase

Foundation Phase: Knowledge and Understanding of the World Area of Learning

Myself and Non-Living Things.

Children should be given opportunities to experiment with different everyday objects and use their senses to sort them into groups according to simple features.

PHASE 3 - ACTIVITY: DESIGN YOUR OBJECT

MINIMUM TIME: 30+ MINUTES.

MATERIALS: DESIGN YOUR OBJECT TEMPLATE; CARDBOARD, PAPER, CRAFT & MODELLING MATERIALS.

LEARNING OBJECTIVE: TO RE-CREATE AN EVERYDAY OBJECT AND MAKE A SKETCH OR MODEL OF THE IDEA.

Using the discussion about everyday objects from previous activities, children should now decide how they will change and re-create the everyday object. The **Design your Object** template will help them develop these ideas. The sheet includes space for children to make a detailed drawing of their idea and also prompts them to answer these questions, some of which relate to IPO concepts:

- What is it?
- Who uses it?
- What does it look like? (Design)
- What does it do? (Patent)
- Give your object a name (Trade mark)

Children can develop their designs in different ways, and how you facilitate this depends on the time available, what resources you have for physical modelling and children's skills and interests. Some may prefer to draw rather than model it or vice versa. Possible approaches are below:

Sketch or draw the object. Have the children sketch their object using the **Design your Object** template. Emphasise this is a first-draft sketch and encourage them to consider the questions in boxes and complete them to provide details about the object.

Make or model the object. If you have the time and resources, children can use modelling materials to create a model of their idea. They could use clay or Playdoh to model it or materials like cardboard, tape, pipe cleaners, paper or aluminium foil to build a representation of their idea. They may not be able to make it function as it would if it were really manufactured, but they can show the intended design and function. They can still use the boxes in the template to provide additional detail on their idea.

Younger children may need additional support from adults to be able to describe their designs and write in any helpful details.

Encourage the children to practice being able to explain their design, what it does and what is new and better about it. The template includes a prompt descriptive sentence to help do that:

We have made a new object.

It's called a _____

and this is what it does: _____

_____. It is great because _____

TO SUPPORT CHILDREN AND STRUCTURE THIS ACTIVITY, YOU COULD TRY THESE IDEAS:

- If the children are working in groups, they may need some support on collaborating to develop a single design idea. If they cannot decide on one idea, encourage them to select one and remind them they can make changes to the design before they complete the final entry. See if there are parts of different ideas they could combine in one design.
- If the children need more structuring of this activity, you could go through each part of the template step-by-step, providing short amounts of time for each aspect.
- If the children need help coming up with a name or logo for their idea, provide some examples of names and logos of products and discuss what makes a good name or logo. Children could also ask others for ideas for a product name.

CURRICULUM LINKS FOR PHASE 3:

England – Design and Technology

KS1: Design purposeful, functional, appealing products for themselves and other users based on design criteria.

Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.

Northern Ireland – The World Around Us

Foundation (strand 4): Change over time – How they can change the materials they play with.

KS1 (strand 3): Place – That people can improve the places where they live.

Scotland – Curriculum for Excellence, Technologies area

First: In relation to the Key Concept – designing and constructing models/products.

I can design and construct models and explain my solutions.

In relation to the Key Concept Exploring uses of materials – I can recognise a variety of materials and suggest an appropriate material for a specific use.

In relation to the Key Concept Representing ideas – concepts and products through a variety of graphic media.

I can explore and experiment with sketching, manually or digitally, to represent ideas in different learning contexts.

Wales – Creative Development Area of Learning:

Foundation Phase:

Range – children should have opportunities to use a wide range of resources and stimuli and be involved in activities that allow them to work as individuals and in groups.

Art, Craft and Design Skills – activities should enable children to develop their understanding of planning, designing, modelling, modifying and reflecting.

Digital Competence framework – add their name and the date to work they have created and give reasons why this is important, e.g. type their first name and surname, add a date to pieces of work and orally provide reasons for doing so.

EXTENSION ACTIVITIES

Ask children to create an advertisement to describe and sell their object to others.

They can draw a picture or create a performance to show the object being used, then share these with other students. This could also help them get feedback on their design ideas in the **Evaluate your Object** activities that follow.

PHASE 4 - ACTIVITY: EVALUATE YOUR OBJECT

MINIMUM TIME: 25+ MINUTES.

MATERIALS: COMPLETED DESIGN YOUR IDEA TEMPLATE; EVALUATE YOUR OBJECT TEMPLATE; PENCILS; MARKERS.

LEARNING OBJECTIVE: TO EVALUATE THEIR OWN DESIGN IDEA AND CONSIDER HOW TO IMPROVE IT.

In this activity, the children will remain in their working groups to evaluate their design idea, then consider ways to improve it. To do this, they will use the **Evaluate your Object** template provided. You can use the prompts already included on this worksheet or revise it with your own. Once you have finalised the categories, hand out one template to each group. Each group should consider the prompts in the template in relation to their own design idea and write down or draw their comments in the corresponding boxes. Give the children a minimum of 10 minutes to do this.

Once the children have considered each question, explain they should now look at their **Design your Object** template and drawing or model and think about any changes or improvements they want to make to their object. Do they want to change the name? The way it looks? How it works? They could write or draw on the original template, perhaps with a different colour pen or highlighter, to show any changes. They should use these ideas for the final version they submit on the **Cracking Ideas Competition Entry** sheet.

IF YOU THINK CHILDREN MIGHT FIND IT DIFFICULT TO EVALUATE THEIR OWN DESIGN IDEAS, YOU COULD TRY ONE OF THESE IDEAS:

- Provide an example of how to evaluate or give feedback. One way is to show an object commonly used by the children in school or at home, for example, scissors, a ball, socks, a fork. Ask them what is good about the design and what they would like to change. Allow them to take turns and practice giving feedback, using prompts such as 'I like...!', 'I don't like...!', 'It would be better if...!'
- For younger children, choose 2-3 areas for feedback and sequentially structure the activity, working through one feedback area at a time. First ask what they like about the idea and give them a short time to discuss this. Then ask what they don't like or would like to change, providing a short discussion time, and so on.
- You could also provide different coloured pens or highlighters for them to mark up their design ideas with colours that may correspond to feedback they are familiar with in the class, for example, green for aspects they like and yellow for aspects they would like to change.

PHASE 4 - ACTIVITY: SHARING AND GETTING FEEDBACK

MINIMUM TIME: 25+ MINUTES.

MATERIALS: PROTOTYPE OR DRAWING OF IDEA TO SHARE, EVALUATE YOUR OBJECT TEMPLATE.

In this activity, children will share their ideas with each other to get feedback. To do this they will need to be able to show and describe their idea, and for this they could use their **Design your Object** sheet or models.

They could get feedback from peers on their designs in different ways.

- Some children or groups could briefly share their ideas with the whole class. You may need to be clear what types of comments or feedback other children might give. For example, after a presentation, you could ask for a few children to say 'one thing they liked about the idea' and a few others to share 'one question they had about the idea'. Children could also give feedback using some of prompts on the **Evaluate your Object** template. Depending on the number of groups creating ideas, this may be difficult to do at one time – you could break up the sharing of ideas across sessions or before and after break times.
- Children could work in small groups and share ideas with another group. The group listening to the idea could complete an **Evaluate your Object** template to provide feedback on the group's idea or they could provide feedback on certain aspects, such as the way the object looks, its name or what it does.

Using the ideas and feedback from others, children should then return to their **Design your Object** worksheet again and think about what changes they want to make to their object. They could make notes or draw new marks on the initial drawing or use blank paper.

IF YOU THINK CHILDREN MIGHT FIND IT DIFFICULT TO GIVE AND RECEIVE FEEDBACK, YOU COULD TRY ONE OF THESE IDEAS TO PROVIDE STRUCTURE AND MAKE GIVING FEEDBACK SIMPLE:

- Help children practice how to give feedback and share ideas. Provide some prompts, such as 'I like the...' or 'You could think about...'
- Encourage children to keep their imaginations open by starting sentences like 'What if you...?' or 'It could...'

CURRICULUM LINKS FOR PHASE 4:

England – Design and technology

KSI: Evaluate their ideas and products against design criteria.

Northern Ireland – The Arts, Art and Design

KSI: Talk about their own and others' work and how it was made, use observations to identify difficulties and suggest modifications.

Wales

Foundation Phase: Creative Development Area of Learning - art, Craft and Design Skills.

Activities should enable children to develop their understanding of planning, designing, modelling, modifying and reflecting, and reflect on their own and others' work.

PHASE 5 - ACTIVITY: COMPLETE THE 'MY CRACKING IDEAS' COMPETITION ENTRY

MINIMUM TIME: 30+ MINUTES.

MATERIALS: MY CRACKING IDEAS COMPETITION ENTRY SHEET, OTHER PREVIOUS DESIGNS AND FEEDBACK, PENS OR PENCILS, POSSIBLY CRAFT AND MODELLING MATERIALS AND TECHNOLOGY FOR TAKING PHOTOS.

LEARNING OBJECTIVE: TO COMPLETE AND SUBMIT A MY CRACKING IDEAS COMPETITION ENTRY.

Once the children have their idea of the everyday object they are re-creating, they should complete the **Competition Entry** sheet. Each competition entry must submit an entry form, but the children can depict and show their design idea in different ways, and this can include drawing the idea, modelling it and submitting photographs or both.

Remind the children that entries should provide enough detail so that the judges can understand the design idea and how it works. The more information provided about the object, the more the judges will be able to understand how the object is both a creative re-invention of an existing everyday object and how it might help with an everyday task. Remind them of the competition criteria and prizes - see details on the next page.

By describing the different aspects of their objects, the children will also be showing some recognition of what is new about their object, in line with relevant concepts of Intellectual Property. These are demonstrated in the following aspects of the entry form: **Trade mark, Copyright, Design, Patent.**

Remind children that they are the inventors of this idea so encourage them to describe it and sign their name so no one else steals it!

WHAT IS INTELLECTUAL PROPERTY?

There are four main ways that creative output and products can be protected, and these terms will probably be familiar to you:

Trade marks protect a product's name or brand.

Copyright protects products that someone writes, makes or produces. It could include writing, sound or music, films, or layouts. Copyright relates to both physical and digital creations.

Design protects the look and design of products, such as their appearance, physical shape or configuration.

Patents protect an invention, though this must be more than just a 'simple' modification to something that already exists.

There is some information in these **Cracking Ideas** resources about IP, and the final competition entry form incorporates these concepts as well.

More information on these concepts can be found at [gov.uk/government/organisations/intellectual-property-office](https://www.gov.uk/government/organisations/intellectual-property-office)

TO MOTIVATE OR SUPPORT THE CHILDREN TO COMPLETE THE COMPETITION ENTRY FORM, TRY THESE IDEAS:

- Remind them of the competition prizes and criteria by showing the competition videos.
- Support children to complete the entry form in a structured way, going step-by-step and working on each aspect one at a time.
- If any children get stuck or are concerned about drawing or writing about their idea, try other ways of submitting and explaining the idea. They could make models of the idea, then photograph the models and print and glue the photos to the entry sheet. Adults can support them in completing the information boxes so sufficient detail is provided and the ideas come through clearly.



HOW TO ENTER THE CRACKING IDEAS COMPETITION

Give your children an extra incentive to get inventing – the chance to win an amazing prize, courtesy of Aardman Animations! You'll find the studio's world-famous characters Wallace & Gromit featured in the **Cracking Ideas** activities and resources, as Wallace is well-known for his love of inventing. These characters not only provide an engaging reference for children as they work on their own inventions, but they will have a chance to win a model-making workshop with an Aardman expert – a truly unique experience! There are also Aardman goody bags on offer as additional prizes.

To enter the competition, children can work individually, in pairs or in small groups on their cracking idea – a new object or a re-design of an existing object that improves and enhances it. Using the **Competition Entry** sheet included in the project materials, children must visualise their designs, either as a drawing or working with other craft materials or providing a photograph, while also explaining how it works.

Make sure all entries include names and contact details. You can send your entries in by post to **Cracking Ideas, Freepost CF 4185, Newport, NP10 1BF.**

Entry forms can also be submitted through e-mail at: **ideas@crackingideas.com.**

The competition closes on 21 May 2020. Click here aard.mn/CrackingIdeas_TCs to read full competition terms and conditions.

Entries will be judged on the following criteria:

- How well entrants have met the challenge: to recreate an existing object to make it better.
- How they demonstrate an understanding of the basics of Intellectual Property
- Originality and creativity
- How they demonstrate effort, consideration and high quality of work

Entrants must be between the ages of 4 and 11. There will be eight regional qualifiers selected by Intellectual Property Office judges (four in the 4-7 age group, and four in the 8-11 age group, one from each region). One overall winner will be selected from these regional qualifiers.



Entrants will also be in with the chance of their idea being chosen to be in the next Wallace & Gromit project!