# Problem solving

Age range: 11-19

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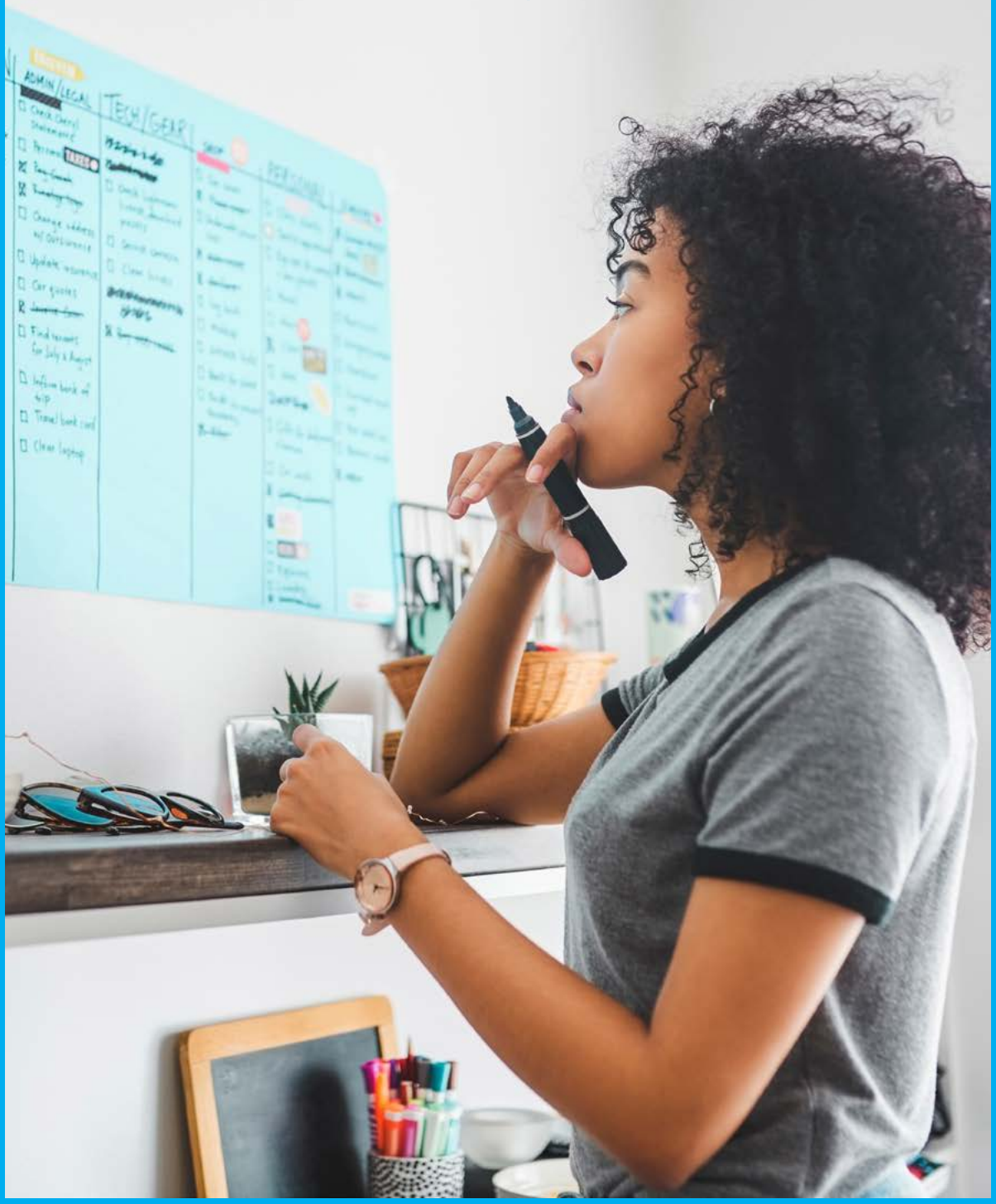

# Session overview

| Time | Key learning outcomes | Resources |
|---|---|---|
| 20-40 mins | By the end of the activity students will be able to:<br>• Identify problems of different scales and what is needed to solve them<br>• Illustrate the use of an adaptable approach to solving problems<br>• Understand that problem solving is a core transferable skill and identify its usefulness in a work setting<br>• Work in a team to solve a problem | • Problem solving student worksheet<br>• Problem solving presentation slides |

Remember that you can refer to the guiding principles for establishing a safe learning environment in the Appendix section of the LifeSkills content guide. This includes suggestions for signposting students to further support. The content guide can be downloaded here.

# Contents

# Introduction to transferable skills

Economic, societal and technological forces are changing the world of work, and skills like staying positive (resilience), problem solving, creativity and leadership are becoming increasingly valuable to employers. Your students may already possess some of these core transferable skills but by improving them and developing others, they can be better prepared for the future workplace. By delivering each of the skill-based lessons in this suite you can encourage growth in all these areas or focus in on the ones your students need most.

- If this is the first LifeSkills lesson you have delivered with this group start by showing students **slide 2** which features each of the core transferable skills at the heart of the programme. Go through each skill and ask students if they can offer definitions (provided below), examples of these skills in action or explain how they might work together, for example being proactive to solve a problem
- If you have already introduced all these skills to the group and why they are all important, move on to the next step to explore the specific skill for this lesson in more detail.

## Core transferable skills

**Problem solving** skills are about the ability to find a solution to a complex situation or challenge, often using analytical thinking to come up with a methodical approach or break a problem down into parts

**Creativity** is the use of imagination and the generation of new ideas, and building the confidence to improve these ideas on your own and by collaborating with others

**Listening and speaking (communication)** is about receiving and retaining information, persuading and influencing others, and using critical thinking skills to evaluate different perspectives

**Leadership** is about recognising your own strengths in order to best support, encourage and motivate others to achieve a shared goal

**Aiming high (being proactive)** is the ability to set clear goals and prioritise tasks to achieve them, as well identifying when to take the initiative instead of reacting to external event

**Staying positive (resilience)** is about the ability to use tactics and strategies to overcome setbacks and achieve goals

**Adaptability** is having the skills to cope and thrive in response to changes and challenge

**Teamwork** is an important skills used when working with another person, or people in a group

# Introduction to transferable skills

- The Skills Builder Framework, developed by the Skills Builder Partnership, provides a shared language and common expectations for eight essential skills: Listening; Speaking; Problem Solving; Creativity; Staying Positive; Aiming High; Leadership; Teamwork. LifeSkills content on transferable skills can be used to support a young person's progression through each of the essential skills, providing a relatable, real-world employability context and this relationship is indicated in brackets above
- LifeSkills lessons always include the opportunity for young people to work in groups and share ideas, as well as providing context for the importance of effective teamwork in the workplace. Look out for the teamwork icon in this lesson and throughout the core transferable skills content

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Skills Builder PARTNERSHIP

## Optional

The Skills Builder Framework provides measurable steps for eight essential skills and can be used in combination with this lesson to support your students' progress.

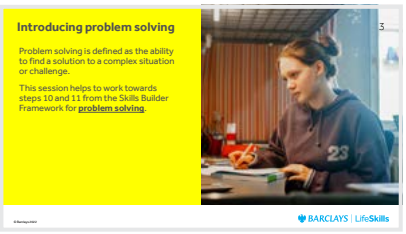
Skills Builder also offer a student Self-Assessment Tool, which helps learners to reflect on their own skill strengths and areas for development. This and other resources can be accessed on the Skills Builder Hub (skillsbuilder.org/hub).

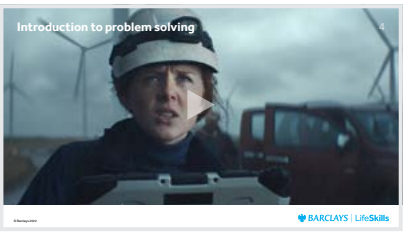
This lesson focuses on the skill of Problem Solving and helps students work towards specific steps of the Skills Builder Framework.

# Activity one

## Introduction to problem solving (11-19)

### 1. Explore the core transferable skills




- Explain to students that one of the core transferable skills they will need for the future world of work is problem solving
- Show **slide 3** and further explain that problem solving is defined as the ability to find a solution to a complex situation or challenge
- To get students thinking about problem solving techniques, get them puzzling over the following activity
- Show the problem solving TV ad on **slide 4** and pause it at 13 seconds in to give students the chance to try the problem themselves in groups (display instructions on a slide too)
- Show the puzzle on **slide 5** and ask students what they would do. You can also come up with your own example of a puzzle to suit your students' needs
- This can be set as an exercise in pairs, groups or as individuals

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### 2. Try the puzzle with a time limit

- **Optional:** You can also set a timer for them to consider/discuss or try and work it out in front of the group there and then, while under time pressure
- Show the film again and give everyone a final chance to solve it before sharing the solution
- Get groups to share their ideas for solutions with the rest of the class
- Show the solution on **slide 5**
- This activity aligns with steps 8 and 9 in the Skills Builder Framework for problem solving

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### 3. Reflect on these questions

**Can students identify what the causes and effects are of the problem and its possible solutions? Did any of the groups find the solution?**

**How many groups created their solution by generating a range of options? Discuss how they chose between different solutions to a complex problem**

**What approach did people take to solving the problem? Discuss which approaches were most effective.**

**Can students think of any times in their lives where they might need to apply problem solving skills e.g. at school, home, work, social action? How successful do they think they usually are at solving problems?**

- Emphasise that problem solving is one of the most important skills to develop because you can use it in so many different situations
- **Optional:** If there is time and you're not completing Activity 2, play the problem solving skills video on **slide 15** to show the importance of it in the world of work

# Activity two

## Putting problem solving into practice (11-16)

### 1. Discuss different types of problem solving

- Explain that you can approach problem solving in very different ways – for some it might be quite informal e.g. in a shop regular problems come up such as having low stock on a shelf and an assistant works out quickly what needs to be done to resolve this. However, sometimes organisations use very creative or structured methods to solve big problems e.g. how can the organisation reduce its carbon emissions/plastic use, or often a business may have started because they have found a solution to a problem so they make the most of the opportunity
- Discuss with students how analytical thinking can be used to come up with a methodical approach or break a problem down into parts
- Explain to students that problem solving skills are transferable across all aspects of life including school, college and work. How could they use problem solving across their subjects at school?

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### 2. Practise problem solving methods

**1** **Explain**
Explain to students that they are going to work on developing an approach to problem solving which can support them in their life and on their journey to work as they encounter obstacles along the way

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**2** **Show**
Show the film on **slide 15** to introduce the six steps of problem solving

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**3** **Ask**
Ask the students what they think about the six steps. Are students familiar with coding? Can they see the similarity in approach? Ask for ideas of the types of problems young people might face on their journey to the workplace or in everyday life that this approach could support them with? Examples might include not being able to secure work experience, wanting to do a different role within a company, or issues with a colleague

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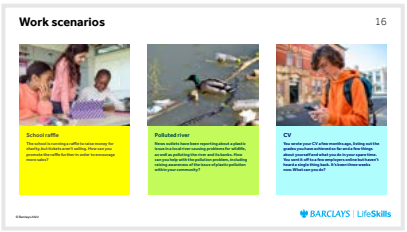
### 3. Explore different problem scenarios




- In groups, give each group a different problem scenario from **slide 16** for them to solve
- Groups should follow the six stages model to try to come up with a solution to the problem and be ready to share their ideas back to the group
- Depending on the ability of the group, provide the hints and/or challenges to each group if they need them, or are finding the problem easy

# Activity two

## Putting problem solving into practice (11-16) (cont.)

### Scenario 1

The school is running a raffle to raise money for charity, but tickets aren't selling

- **Challenge:** Families are saying the tickets are too expensive; they aren't that interested in the prizes on offer
- **Hint:** Could you use posters outside school to promote it and explain the cause further? Could you provide ticket bundles, such as a discount if people buy 5 tickets? Could you try and find more/better prizes by asking local businesses to donate so people are more tempted to take part?

### Scenario 2

News outlets have been reporting about a plastic issue in a local river causing problems for wildlife, as well as polluting the river and its banks

- **Challenge:** Your school canteen uses a lot of plastic packaging and there aren't many recycling bins provided in the right places around the school, this is similar throughout your local community
- **Hint:** Are there relevant volunteering opportunities available? Could you arrange a litter pick, or create a campaign to educate people in the school/area about plastic pollution, which encourages residents and local shops to reduce plastic use?

### Scenario 3

You're looking for a job but aren't hearing back after submitting your CV

- **Challenge:** You contact some of the employers; one says they haven't seen your CV, one says you don't have the right qualifications, and one saw something they didn't like on your Instagram
- **Hint:** Set up a LinkedIn page to better display your experience; participate in volunteering to include on your CV; ask friends and family about work experience opportunities; change your privacy settings on social media and consider deleting things that portray you in a bad light

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### 4. Reflect on these questions

Ask teams the following questions to feedback to the wider class:

**Ask students to review and evaluate the different solutions shared and consider which would work in reality? How would they test this?**

**How did they get on with looking at the causes and effects of the problem, is there anything else they could have benefited from doing, i.e. carrying out research?**

**Encourage students to consider whether they used analytical thinking when finding a solution and if not how this type of thinking could help them in the future**

**Get students to reflect on whether using the model helped them to find a solution – did they naturally approach it in a different way? Is there anything they would do differently if they did the task again?**

Make the link between being able to solve problems and being enterprising; suggest your students could take this even further by showing the enterprise film and encouraging them to start their own enterprise journey.

- This activity aligns with step 10 of the Skills Builder Framework for problem solving

# Activity three

## Creating new opportunities (16-19)

### 1. Solve day-to-day problems

- Start by asking the students if they know the six steps to problem solving
  - If not, show students the film on **slide 16** on the six steps to developing an adaptable approach to solving problems large or small

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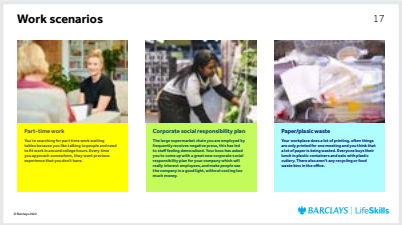
### 2. Explore examples of daily problems in the workplace




- Now give students examples of daily problems you might face in the workplace. Help them to understand that we all need to solve problems – some big, some small – but it's a vital skill. Without being able to solve problems, human development would not be where it is now
- Show the examples of problems on **slide 17**
- Hand out the **Problem solving student worksheet** to help students think about the different scale of problems we face. They can work in groups to find examples of problems they face individually, in the school, in the community, in work where applicable, and globally. Give the class five minutes to work on this, then ask each group to share their best examples with the class
- Write some of the most adventurous or ambitious problems on the board for the class to see

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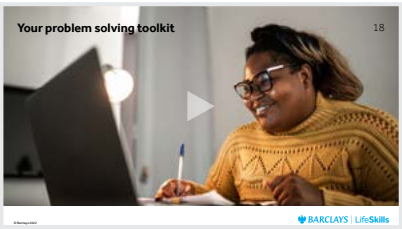
### 3. Discuss what we need to tackle problems




- Next ask the students to think about what we would need to try and tackle some of these problems. Capture their responses on the board: try to group the answers into resources, knowledge and skills (explanations below), without labelling these yet. Alternatively, ask the students to write their ideas on sticky notes and challenge them to categorise them into the three groups
- Ask the students to look at the groups of ideas and help them recognise that problem solving usually needs resources, knowledge and skills. Display **slide 18**. Here are some examples:
  - **Resources:** time, money, connections, friends, suppliers
  - **Knowledge:** technical know-how, expert information, information about the location
  - **Skills:** creativity, determination, innovation, negotiation, staying positive (resilience)

# Activity three

## Creating new opportunities (16-19) (cont.)

### 4. Identify problem solving tools

- To further explore how resources, knowledge and skills are needed to successfully solve problems, load the 'Your problem solving toolkit' interactive tool, linked on **slide 18**. This will help students identify how problem solving tools can be applied to resolve very different problems
- Ask students to consider how research might help them come up with a better solution to a more complex problem
- Ask the students to work in groups and they should choose one scenario from their **Problem solving student worksheet** that they can tackle as a group

### Suggested solutions

**Scenario 1** Explain that you really want to work in hospitality and feel your skills fit well. Offer to do an (unpaid, or very short) trial shift in exchange for them giving you a go.

See if there's anywhere locally you can volunteer time and gain experience in customer service.

**Scenario 2** Suggest introducing a volunteering strategy that allows employees to spend a short amount of time each giving back to the local community. Promote the activities via the company's internal newsletter, on social media and, if relevant, tell the local press about what you're doing.

**Scenario 3** Contact the office manager or senior staff about why there's no recycling bin in the office. Share any recent articles about the importance of recycling with colleagues, or reports of offices going paperless to inspire positive change. Ask if your employer could provide re-useable cutlery.

- The students have 15 minutes to plan how they might solve their chosen problem and create a two-minute presentation to explain their problem and solution to the rest of the class. Use the below as prompts if necessary

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### 5. Reflect on these questions

Ask for constructive feedback from the rest of the class – share that feedback can be structured by offering a compliment on one thing they did like and offering one helpful way of improving their solution

**Can students identify why research is an important part of exploring complex problems?**

**Get students to reflect on how they approached the task – what were the most effective ways of approaching problem solving as a group?**

**Would they do anything differently in future based on how the other groups approached the task?**

**Does their idea have longevity?**

- Encourage them to think about how problem solving can be applied across a range of subjects including maths, computer science, design and technology and many more
- Suggest that students also think about how they could start to portray their problem-solving abilities in a job interview. Explain that particularly when interviews are competency based, they may be asked to describe a time they solved a problem
- This activity aligns with steps 7 and 11 of the Skills Builder Framework for problem solving

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# Problem solving

## Scenario 1

You are launching a new app for students to help them with budgeting during their first year at University/College.

### Scenario 1

You're searching for part time work as a waiter because you like talking to people and need to fit work in around college hours. Every time you approach somewhere, they want previous experience that you don't have.

**Identify**

What is the problem?

**Break it down**

Chunk the problem into manageable parts

**Observe**

Look for recurring patterns

**Think freely**

Focus on the big picture

**Apply**

Try a few different options

**Evaluate**

What have you learnt? What would you do differently?

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# Problem solving

## Scenario 2

### Scenario 2

The large supermarket chain you are employed by frequently receives negative press; this has led to staff feeling demoralised. Your boss has asked you to come up with a great new corporate social responsibility plan for your company which will really interest employees, and make people see the company in a good light, without costing too much money.

**Identify**

What is the problem?

**Break it down**

Chunk the problem into manageable parts

**Observe**

Look for recurring patterns

**Think freely**

Focus on the big picture

**Apply**

Try a few different options

**Evaluate**

What have you learnt? What would you do differently?

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# Problem solving

## Scenario 3

### Scenario 3

Your workplace does a lot of printing and often things are only printed for one meeting which you think wastes a lot of paper. Everyone buys their lunch in plastic containers and eats with plastic cutlery. There also aren't any recycling or food waste bins in the office.

**Identify**

What is the problem?

**Break it down**

Chunk the problem into manageable parts

**Observe**

Look for recurring patterns

**Think freely**

Focus on the big picture

**Apply**

Try a few different options

**Evaluate**

What have you learnt? What would you do differently?