



Employment

How to solve problems

This resource will develop students' problem solving skills.

This topic is made up of three parts. You can present them one at a time or follow on depending on the needs of your students and the time you have available.

Learning Intentions

When students have finished this topic, they will be able to:

- Learn how to use a problem solving technique
- Be able to evaluate their own and other's solutions

They will learn these skills by:

- Participating in group discussions
- Watching a video
- Group activity

	What students will do	Preparation for lesson
Part 1 <i>'What is problem solving?'</i>	Video and group activity	<ul style="list-style-type: none"> • Computer with internet connection to watch video 'Satellite Boy' • 'Satellite Boy' video • Copy of plot map worksheet • Butcher's paper, whiteboard or Smartboard • Butcher's paper and pens for students to use
Part 2 <i>'Is this a good solution?'</i>	Class discussion	<ul style="list-style-type: none"> • White board, blackboard or butcher's paper • Plot map created in Part 1
Part 3 <i>'How do I solve problems?'</i>	Group Activity	<ul style="list-style-type: none"> • Computer to play 'Satellite Boy' video if needed • Butcher's paper, whiteboard or Smartboard • Paper and pens for students to use • Problem solving process presentation • Access to the internet for students to do research

Word list:

Problem = Something that you need or want to fix. Something that you need or want to change. A problem can be harmful or just unwanted. It is something that could stop you from doing what you want or need to do.

Problem solving = What you do when you think about and try to find one or more ways to fix or solve a problem. It can help you to move forward with what you need or want to do.

Goal = something you want (e.g. to buy a car), that you want to get done (e.g. make or build something), or that you want to work towards (e.g. to have a good job and/or a family).

Solution = one of the ways you can think of to fix or solve the problem.

Authority = someone or something with power like the 'law' or a 'big corporation'. Authority can sometimes help you (or make it easier) and sometimes it can get in your way (make it harder) for you to do what you want or need.

Part 1: What is problem solving?

Objective – What do we want the students to know?

The purpose of this lesson is to introduce the concept of problem solving

Overview – How will they learn this?

Students will watch the film *Satellite Boy* or excerpts of it and identify the problems Pete and Kalmain encounter and how they solved them.

Resources – What will I need?

- Computer with internet connection to watch video ‘Satellite Boy’
- ‘Satellite Boy’ video
- Copy of plot map worksheet for each student
- Butcher’s paper, whiteboard or Smartboard
- Butcher’s paper and pens for students to use

Lesson plan – What do I need to do?

1. Introduce students to what they are going to do today: watch the film ‘Satellite Boy’ and identify the problems the main characters encounter.
2. Explain to students that a problem is something that ‘gets in your way’ or stops you from getting what you need or want. Use an example to illustrate the definition (for example:). Ask students if they can think of any other problems (not having enough money, being ‘humbled’ for something, not being allowed to do what you want).
3. Introduce the film. Always tell the students some basic helpful facts about the learning and what you expect them to notice ***before*** you start. E.g. ‘This film is about: A young boy (Pete), and his friend (Kalmain) who take off for the city. They want to stop a building project being started by a mining company on Pete's mother's ancestral homeland. The two boys set out to solve one main problem (the mining project) but then have to solve many other problems along the way.’

As you are watching, take note of these things:

1. What are some of the problems they come across?
 2. Who causes these problems?
 3. Who fixes these problems?
 4. What are some of the ways the boys solve the problems?
 5. What are some of the 'solutions' the boys choose that end up causing more problems?
4. Hand out the plot map worksheets to students. Depending on the literacy level of students, students can complete individually or in pairs.
 5. Show students how to use the worksheets. Point out that the map shows where the boys go in the film. Students need to write notes on the map identify the important things that happen in each place.
 6. Play the film. This may take several sessions, as it is a long movie (1.5 hours). It is a good idea to stop the movie ten minutes before the end of each session and capture student's observations about the problems the main characters experience if you need to break watching the film up.
 7. As a whole class, ask students what was Pete's main goal in the film? What did he want to change?
 8. Ask students "What problems did Pete encounter along his journey?" Students need to look at each place where they stopped and name the problems the two boys encountered. Then, they need to add these to the map in a different colour.
 9. Bring the groups back together as a whole class with their maps.
 10. Create a table like this on the board:

Problems encountered	Solutions

11. Ask each group for a problem as shown on their map. Add their ideas to the first column. Keep gathering student ideas until all groups are done.

12. Once you have listed all of the problems, work through and add the solutions chosen by the boys in the film. Keep gathering student ideas until all groups are done.
13. Summary: problem solving is a process of trying to find solutions to get around obstacles and achieve our goals.

Part 2: Is this a good solution?

Objective – What do we want the students to know?

The purpose of this lesson is for students to develop an awareness of some of the possible leadership styles.

Overview – How will they learn this?

Students will watch a presentation that introduces the terms autocratic, democratic, servant and laissez faire leadership styles. They will watch short scenarios that illustrate each concept. They will identify the leadership style of their selected leader.

Resources – What will I need?

- White board, blackboard or butcher’s paper
- Plot maps created in Part 1

Lesson plan – What do I need to do?

1. Introduce students to what they are going to discuss today: evaluating possible solutions to problems
2. Hand out the Satellite Boy graphic organiser worksheets and maps completed in Part 1.
3. Add an extra column to the table from the previous session. The first two columns should still be filled out from the previous session

Problems encountered	Solutions	Effectiveness
<ul style="list-style-type: none"> • flat tyre • seeing the police • getting lost • no water • crossing the river • no food 		

<ul style="list-style-type: none"> • mine workers not letting them through the gate 		
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4. Explain that to evaluate is to make a judgement about something. In this case, we will be evaluating how useful Pete and Kalmain's solutions were.
5. Look at the first problem and solution. Talk students through the solution, discussing the positives and negatives of using grass to fix a flat tyre (+: better than walking -: very slow, hard over long distances, hard to get tyres back on bike)
6. Ask students whether they think it was a very effective solution. Would the boys have been able to ride like this the whole way to Kununurra? What are some of the things that might go wrong if they rode all the way to town like this? Would they have used a similar solution? Add student input to third column.
7. Work through at least three of the other solutions, evaluating the usefulness of each. Some will be quite simple (Kalmain swimming Pete across the river was very helpful), others like crossing into the desert to get away from the police are more complex. Encourage students to give reasons for their answers.
8. Fill the third column with their input. You can have a class vote to ascertain which solutions the class thinks were effective.
9. Summary: end the lesson by saying the solutions to problems often have positive and negative consequences, its up to you to decide what is the best solution to use.

Part 3: How do I solve problems?

Objective – What do we want the students to know?

The purpose of this lesson is for students to develop their problem solving skills by learning a problem solving process

Overview – How will they learn this?

Students will watch a presentation that outlines the steps to problem solving. They will then practice these skills by doing a group exercise where they create an alternate plan for Pete and Kalmain to follow.

Resources – What will I need?

- Computer to play ‘Satellite Boy’ video if needed
- Butcher’s paper, whiteboard or Smartboard
- Paper and pens for students to use
- Problem solving process presentation
- Access to the internet for students to do research

Lesson plan – What do I need to do?

1. Introduce students to what they are going to do today: learn how to problem solve and create a plan for Pete and Kalmain
2. Explain that the class will start by learning a problem solving process. This is not the only way to solve a problem, just one that is useful to some people.
3. Hand out the graphic organiser worksheets to students. Depending on the literacy level of students, students can complete individually or in pairs.
4. Show students how to use the graphic organiser. Point out the key points in the presentation you want the students to look for.
5. Show students the problem solving process presentation.
6. Once completed, ask students to identify the six steps of the process. Write them up on the board.
7. Go back to each step and ask students about each one. Write down their input and ask micro questions, aiming to get a detailed picture of the six steps on the board.

8. Once you have the process outlined, identify a problem from Satellite Boy. Model applying the problem solving process to the identified problem. Ask students for input at each stage.
9. At the end, evaluate the solutions the class has identified against the solution the boys came up with in the movie. Which is more effective? Encourage students to give reasons for their answers with more micro questions.
10. Summary: end the lesson summing up that problem solving processes can sometimes make it easier to find solutions.

Lesson plan – What do I need to do?

1. Introduce students to what they are going to do today: use the problem solving process to come up with an alternate plan for Pete and Kalmain to follow.
2. Remind students of the six step problem solving process. Recap briefly the different steps you need to follow.
3. Students move into small groups. Hand out paper, pens and any relevant documents from previous lessons like graphic organisers and their map of the Pete and Kalmain's journey.
4. Set the problem: Pete and Kalmain need to travel to town to talk to the mining company owners and stop them from demolishing Pete's home.
 - The town is three days away.
 - They have no money, two bikes and whatever else they can find at their homes to take with them.
 - They have to be careful that the police don't find them, otherwise they'll be taken back home and Kalmain will go to a boy's home.
 - They don't have to follow the same journey as they did in the movie.

Use the problem solving process to create a plan for Pete and Kalmain to follow before and during their journey.

5. Give students paper and pens to record their plan. They need to use the internet or other information source to research possible solutions.
6. Support groups as they work through their plans. They may need help negotiating each of the steps, or in coming up with ideas.
7. When groups are finished, have them come together as a whole class and share their plans. As a class, have the students select the strategies they think would work best.
8. Teacher critiques the class solution, identifying the strengths of the solutions.