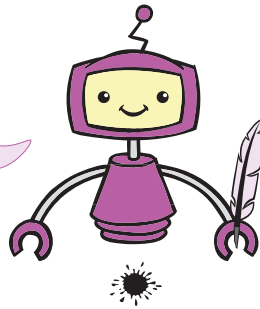


Weird science

I've invented a new device for getting Peter and Anna ready for school on time. It's called a Wake-Up-You're-LATE-erator. Nifty name, huh? Now it's your turn to invent something, or at least to imagine inventing something, and to write a patent application for your fabulous new device.



LINKS TO:

Stage 3, Module 13

Learning Object 4: *Turn left at the next intersection*

PRIOR LEARNING:

Stage 3

Module 13 Work Sheet 3: *A new invention*

1 Inventing a better world

In Work Sheet 3, *A new invention*, you read Irma Hidayat's patent application for her Water Miser. In this work sheet, you will have an opportunity to invent a device that will have a positive impact on people's lives, and to write a similar patent application.

In inventing your own device, you'll have an opportunity to continue developing and improving your creative thinking.

Creative thinking

There are many different ways of thinking about creative thinking. Generally, people who write about creative thinking agree that it is a way of finding solutions to problems through lateral, rather than purely logical, thinking processes.

The processes you use when you apply creative thinking to a problem can be quite structured, but they can also incorporate strategies like playing, dreaming and doodling.

Creative thinking is useful whatever the problem you are trying to solve: how to make new friends, how to come up with good ideas for your science project, or how to write a story or paint a picture.

One model for creative thinking is called Creative Problem Solving. It was developed by Scott Isaksen and Donald Treffinger.

In this work sheet, you are going to try out some of the skills of creative thinking as you develop your own invention. Isaksen and Treffinger describe six stages in the creative problem-solving process:

1. Mess finding

What is the mess that needs cleaning up, the problem that needs a solution?

2. Data finding

What facts, feelings, opinions and thoughts can help you better understand the mess? Collect and consider as much information as possible.

3. Problem finding

Come up with a 'problem statement' that clearly identifies the problem you want to solve.

4. Idea finding

Think of as many alternatives as possible for sorting out the mess you've identified. Don't evaluate your solutions at this point; be as crazy, impulsive and *creative* as you can!

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5. Solution finding

Evaluate your ideas and decide which is the most effective and efficient solution to the mess.

6. Acceptance finding

It is time to come up with a plan to implement your solution. Work out how you will put your plan into action.

In this work sheet, you are going to do some creative problem solving. Don't worry, you have already been using these skills in earlier writing work sheets!

Source: Adapted from Scott Isaksen and Donald Treffinger. *Creative Problem Solving: The Basic Course*. New York, Bearly Limited, 1985.

Exercises

In this work sheet, you will be guided through the process of coming up with an invention and writing a patent application, using Isaksen and Treffinger's six-stage model for Creative Problem Solving.

Your final task — the patent application — will be written in Indonesian. You can write your answers to the development stages using some English, but be sure to use the planning process as an opportunity to identify words and phrases you will need to learn in Indonesian by doing as much of the work as you can in Indonesian.

To make your task a little easier, Step 1 has been completed for you.

Step 1: Mess finding

As Irma Hidayat identified in Work Sheet 3, *A new invention*, water is a limited resource. One problem that needs solving is the amount of water that is wasted every day.

Although your aim will be to find a different solution, you'll be working on an invention to solve the same basic 'mess' that Irma Hidayat was working to solve: What can I invent that will reduce the amount of water that is being wasted?

Exercise 1

Step 2: Data finding

What facts, feelings, opinions and thoughts can help you better understand the problem of water wastage?

Collect and write down as much information as you can about water wastage from research, discussion, observation and imagination. Write your answer in English.

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Exercise 2

Step 3: Problem finding

Now that you have a greater understanding of the problem you are going to solve, you can formulate a problem statement.

Your statement should narrow down the focus to a particular aspect of water wastage.

For example, in Irma Hidayat's patent application, she identified the amount of water wasted while people wait for their showers to heat up as the 'mess' she was aiming to solve.

Write a short statement that clearly articulates the water wastage 'mess' your invention will solve.

Exercise 3

Step 4: Idea finding

On a separate piece of paper, write as many alternative ideas as possible for sorting out the mess you have identified.

Don't evaluate your solutions at this point; be as crazy, impulsive and *creative* as you can! You can express your ideas in English or in Indonesian, as a combination of text, images or ... doodles! Whatever helps you 'think on the page'.

Summarise your ideas in the box below.



Exercise 4

Step 5: Solution finding

Decide which is the most effective and efficient solution to the mess. It is time to evaluate your ideas.

Select three to five of the ideas you came up with in Exercise 3. Write each idea down in the first column. Then write an evaluation of each idea, in dot points, in the second column.

Solution one	
Solution two	

(continued on following page)

Solution three	
Solution four	
Solution five	

Exercise 5

Step 6: Acceptance finding

How awesome! You have come up with a whole range of creative solutions to the problem of water wastage. Now it is time to imagine your invention as a reality.

To articulate your vision, you are going to write a patent application, using the same headings and layout as Irma Hidayat used to describe her Water Miser. The patent application format will allow you to consolidate the information and ideas from some of the earlier stages in your creative problem-solving process.

In Indonesian, use your ideas and the information you have gathered to write a patent application for your new water-saving invention.

This is an extended piece of writing.

Hint! You may wish to take another look at the patent application Irma Hidayat wrote in Work Sheet 3, *A new invention*, to remind you what information you need to include in each section.

OVERVIEW

Name of your invention

General description

Hint! The general description is a good place to include some of the material you generated in Step 2, Data finding, and Step 3, Problem finding.

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About the inventor

INSPIRATION

(continued on following page)

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HOW IT WORKS

(continued on following page)

