Getting Creative with Pororo
The Little Penguin

1 Great Ideas
Episode

Pororo, riding a sled with friends, believes he will reach the bottom of the hill but is overtaken by Eddy. Pororo learns that Eddy has been able to build a new and faster sled after much trial and error. Eddy then encourages Pororo to invent his own sled. Pororo shows his friends the blueprint for his new sled and begins the process of building it.

This episode shows Pororo and his friends brainstorming new ideas for the sled. It also shows how inventing is a fun activity for everyone including children, and stresses the importance of keeping notes during the invention process.

Lesson Objectives

- Instead of giving the dictionary definition of “invention”, teach children to learn naturally.
- Have children find inventions and inventors in their daily lives.
- Have children learn to come up with their own ideas.
- Have children learn the steps to an invention and have them reach for an idea.
- Show children the fun of inventing through practice.
- Have children learn ways to improve their inventions through comparison.
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Great Ideas

Workbook
Pororo and friends were riding a sled and decided to invent a new one that could go faster. What is invention? Let’s think about it together.

What is invention? Let’s look for it?
Choose all those things that have been invented from the pictures below. (paint)
Who are inventors?

Write the names of any inventors you know of and what he or she has invented.
Let’s link the inventors to their inventions.

- Thomas Edison
- The Wright brothers
- Alexander Bell
- James Watt
- Telephone
- Steam engine
- Light bulb
- Airplane
Shall we take a look at how Pororo and friends constructed their invention and follow their steps? What kind of sled do Pororo and friends want? Describe the sled Pororo wants to make.
Write down, in order, Pororo’s ideas for inventing a fast sled.

Mast
( )

Balloon
( )

Propeller
( )

Jet Engine
( )
To invent something, we need first to make an invention note. Let’s think about how Pororo and his friends drew up theirs.

Here is a diagram of the sled Pororo wishes to make. But by mistake it has been torn into several pieces. Put the pieces back together to make it a whole design.
There are many ways to create an invention. Sometimes we can add a special function of one object to another to make it more convenient to use. We call this addition invention. What can we do to make an addition invention?

Find items from those below that Pororo added to make his new sled.

- fan
- propeller
- jet engine
- sail
- mast
- balloon
Take a close look at the objects below. How was addition invention used here?

straw + crease

pencil + eraser
Subtraction invention is the opposite of addition invention. What can we subtract from the objects below to make new inventions?

- Car:
  \[ \text{car} - (\ ) = \text{convertible} \]

- Telephone:
  \[ \text{telephone} - (\ ) = \text{cordless telephone} \]

- Watermelon:
  \[ \text{watermelon} - (\ ) = \text{seedless watermelon} \]
Invention inconvenience. Is there an object or a situation that you find uncomfortable in everyday life?

ex) If water puddles formed under the glass turned upside down for drying, it isn't good for hygiene.

What can we do to make an inconvenient thing more convenient?

ex) Tilt the cup not to touch water puddles by the rim.

What is needed to make life more convenient?

ex) Design the cup to tilt when placed upside down.
Let’s draw a picture of everything we have talked about so far.
Below is an invention note. Let’s fill in the blanks.

1 Pencil erasers are often lost after use.
   • It would be good to (fix) the eraser so that it can be found easily.
   • (fix) the eraser on the (end) of the pencil.
   • A pencil with an eraser tip is invented!

2 Skates worn to slide on ice during wintertime cannot be used once the ice melts.
   • Want to skate any time of the year and not just in winter?
   • Skate blades only slide on ice.
   • (  ) can be used instead of skate blades to slide on ground that is not icy.
   • (  ) skates that have (  ) instead of skate blades are invented!

3 It is difficult to know whether the water in the kettle is boiling unless watched carefully.
   • Want to know right away when the kettle starts to boil?
   • When water boils, steam evaporates and adds pressure.
   • A small (  ) made on the lid will make a sound when pressure builds up inside the kettle.
   • A kettle that whistles when the water boils is invented!
LET'S MAKE A PAPER SLED

What you need

Paper Sled Printed Sheets, Straw, Cutter Knife, Ruler, Glue, Scissors
Great Ideas

INVENTION KIT
What to do

1. Cut along the Cutting line on the sheets. (Be careful not to hurt your hands!)
2. Fold the body. (➊)
3. Attach the leg to the body. (➋〜❼)
4. Attach the rest of the component and fix it. (❾〜❹)
5. Attach remaining parts onto the body. (❹〜❼)
6. Set sails. (➍〜❼)

Great Ideas
Let's find another way to go faster after making a paper sled.

Let's compare the difference between using wind and using a balloon.

wind

balloon

What can we add to make it faster?
Done!
Try to make the sled go forward!
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Educational Animation on IP for Children

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Think about and write down all uncomfortable things in life and what inventions you would like to make.
Choose one of the uncomfortable things that you wrote down, take a photograph of it and explain in detail how it makes you uncomfortable.
Freely express in drawings how the uncomfortable thing can be fixed.
Now draw a diagram of the invention you would like to create.
5. Complete the invention note

Take a look at your diagram and give a name to the invention.
Draw the process of making your invention note in a 4-cell comic.
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idea  stone  
water  fire  
think  try  
creative
Glue
- Mountain Fold
- Valley Fold
- Cut Line
Glue
Mountain Fold
Valley Fold
Cut Line
Glue

Mountain Fold

Valley Fold

Cut Line

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POP-UP SLED