

THE STORY OF THE PIG THE MAGICAL PIGSKIN AND THE STOVE'S FIRE (T1)

S8
T1
D7
L1 P3

In focus:

- Physics, robotics, engineering (D7)



Task1: Make a piggy bank, a travelling bag or a bird feeder from recycled materials. Watch the video and create together!

Bake a good luck piggy cake together!

Every solution is good!

Any kind of tool and material can be used!

You can use the ideas and the list of materials from the Idea Bazaar, use your own ideas or just let the children to solve the problem using their creativity.



Idea Bazaar – some ideas:

- Children collect used T-shirts, bottles, other recyclable materials
- Watch the videos below together and then make crafts together, or have the children make their own using the videos and following the steps shown in the videos.
- Use the Idea sheets (I1, I3)
- The videos:
piggy bank: <https://youtu.be/AkK4eY5QSc4>
travelling bag: <https://youtu.be/Y7dzB4-82zw>
bird feeder: <https://youtu.be/S5KGs4a18rM>

For details of the different solutions, see the Idea sheets!

Developmental fields:

In focus:

- Graphomotor skills
- Creativity
- Spatial orientation

In addition:

- Nature conservation
- Attention development
- Life experience

Task 2:

Find the hidden pig using the codes!

Children should fill in each field with the colour indicated.

	1	2	3	4	5	6	7	8	9	10
A										
B										
C										
D										
E										
F										
G										
H										
I										
J										

Idea Bazaar – some ideas:

- Use the code-breaking colouring sheet (I2)
- Make groups of similar code-breaking colouring pages. Let the groups try each other's worksheets!

For details of the different solutions, see the Idea sheets!

Developmental fields:

In focus:

- Algorithmic thinking
- Fine motor skills
- Spatial orientation

Managing the output:

Make an exhibition of the piggy banks, bags and bird feeders you have made. Label the creations with the name of the group. Let other classes try out the code-breaking colouring pages at school!

A great team building activity is to bake a good luck pig together, get the parents involved in the project!

THE STORY OF THE PIG THE MAGICAL PIGSKIN AND THE STOVE'S FIRE (T1)

S8
T1
D7
L2 P3



In focus:

- Physics, robotics, engineering (D7)

Goals of the lesson:

- Reading comprehension
- Problem solving
- Decision-making
- Organising group work

When the princess arrived at the bridegroom's house, she was very pleased with it, but when she caught sight of the bridegroom, she was very astonished. The pig snuffed about the house during the daytime, but each night, his pig's skin dropped off, and out stepped a handsome prince! After a while, the princess told her parents all about her husband.
- "My dear! Always keep the stove lit, and when your husband falls asleep, put the pigskin in the fire."
- What a good idea, mother! - the princess agreed.

When her husband was fast asleep, she took the pigskin and threw it on the fire. Her husband woke up right away and looked sorrowfully towards the stove.

If ever you need me, remember my name is Fair Knight, and I will be found at the Incense Monastery. Just as he finished speaking, a sudden gust of wind blew, and a terrifying whirlwind whisked the emperor's son-in-law off his feet and carried him out of sight. Then the palace where the old couple and their daughter-in-law lived with all their riches, turned once more into the miserable little cottage which the old couple had inhabited.

Suggestions

- Discuss what you can heat with in a stove!
- Discuss why burning different things is bad for the environment.
- Show the children pictures of different stoves!
- Talk about why it is important to be critical of other people's advice!
- Collect a story with a magical transformation like this one!

Main features and interactions of the characters

Character	Features	Interactions
Stove	Hot, shining	The tray opens and closes, moves
Princess		Throwing the pigskin in the stove

How to use the character card:

Each student fills in their own Character card:

- writes the name of the character
- their features, movements, reactions, etc.
- collects the elements of the environment, other accessories, things to be built
- thinks over the phases, tools and materials of the robot's building

Students can use more pieces of each part of the Character card if needed!

Stove
Pigskin

Hot
Shining

Furniture
Dress
Food

The main actions of the story
Media files needed
Divide the text segment into pieces
Make a list about things needed

Character task cards

1. Your name _____
Build _____

2. Your name _____
Be attentive, your robot should be able to: _____

3. Your name _____
There also should be: _____

4. Your name _____
Think over: _____

THE STORY OF THE PIG

THE MAGICAL PIGSKIN AND THE STOVE'S FIRE (T1)

S8
T1
D7
L3-4
P4



Materials needed

- ArTeC blocks (at least the 112 pcs set) and ArTeC robot set (1 Studuino motherboard, 2 Touch sensors, 2 LEDs, 1 servo motor, 1 DC motor, 2 IR photoreflectors, gears, drive rails)
- Mindmap or Chart draft, Storyline
- Character cards and Robotic task card template
- Pencil

In focus:

- Physics, robotics, engineering (D7)

Goals of the lesson:

- Reading comprehension
- problem solving
- Decision-making
- Expression of movement

How to fill in the Robotic card?

Choose the robot's „activity” and its programming complexity according to the Character task card, the developmental aim and the programming level that fits the child's skills. More Robotic cards can be filled in if needed (for clarification or for differentiation).

Suggestions

Stove

- Discuss with the children how to visualise a stove
- Build a simple stove from blocks and connecting elements

Door - opening and closing
Stove tray - sliding in and out

Robotic task card

Your name: _____

Build a robot that can move its: _____

Use actuators and sensors for building:
 Senses are green
 Actions are blue
 Choose the needed parts!
 Check the boxes!

<input type="checkbox"/> Building	<input type="checkbox"/> Servomotor	<input type="checkbox"/> DC motor	<input type="checkbox"/> Sound sensor	<input type="checkbox"/> Light sensor
<input type="checkbox"/> Accelerometer	<input type="checkbox"/> Infrared sensor	<input type="checkbox"/> Touch sensor	<input type="checkbox"/> Electronic buzzer	<input type="checkbox"/> LED

Build and program so that the robot: _____

Use the Technical Corner for robotics helping models!

Related topics in the Technical corner

- Programming DC motor (2.a, 2.b)
- Programming Touch sensor (or buttons)
 - Starting and stopping DC motors by pressing the same or different buttons or Touch Sensors(4.b, 4.c)
- Programming servo motor
 - Moving elements mounted on a servo motor to a given angle (3.a)
- Using LED (5.a)
 - Flashing (5.b)
- Using IR photoreflector (7.a, 7.b)

Puppeteering with an exciting robot and gear system

PROG1

The stove door and tray are both DC motor driven and Touch sensor controlled.

PROG2

The stove door is moved by servo motor, the stove tray by DC motor and the program is started and stopped by two different sensors.

PROG3

The two directions of movement of the two different types of motors in the structure are controlled by 1 IR Photoreflector each.

PROG4

THE STORY OF THE PIG THE MAGICAL PIGSKIN AND THE STOVE'S FIRE (T1)

S8
T1
D7
L3-4
P5

Ideas for robots on different programming levels

Puppeteering with an exciting robot and gear system

PROG1

The stove door and tray are both DC motor driven and Touch sensor controlled.

PROG2

The stove door is moved by servo motor, the stove tray by DC motor and the program is started and stopped by two different sensors.

PROG3

The two directions of movement of the two different types of motors in the structure are controlled by 1 IR Photoreflexor each.

PROG4



The stove

P1 Directly driven gear mechanism

- All characters and the stove door are equipped with a shaft, so that all the characters in the scene can be moved.
- The tray coming out of the stove moves with the help of 1 DC motor on a drive rail and a gear, which can be switched on and off directly with the switch on the battery box.

P2 Touch sensor controlled robot

- The structure of the characters and the stove tray does not change from P1. However, the stove door can be opened and closed by a DC motor.
- Door opening and closing, as well as tray opening and closing, is controlled by a Touch sensor each.
- Press one Touch sensor to open the door and the tray comes out of the stove, and press the other to return the tray to the inside of the stove and close the door.

P3 Servo motor opening mechanism

- The structure of the characters and the stove tray does not change from P1.
- The stove door opens with a servo motor.
- The door of the stove is controlled by an infrared sensor, and when the princess is placed in front of it, the stove door opens and the tray rolls out.
- Press the Touch sensor and the tray rolls back into the stove and the door closes.

P4 Automatic mechanism

- The scene is identical to P3, but instead of a Touch sensor, an infrared sensor is built into the tray.
- The door of the stove opens and the tray comes out when you place the princess in front of the infrared sensor.
- In this scene, however, we place the pigskin on the tray of the stove, on the built-in infrared sensor.
- This triggers the return of the tray to the stove and the closing of the door.

