

THE ROBBER HOTZENPLOTZ

AN ADVENTURE IN THE DARK (T3)



**S12
T3
D7
L1 P3**

Focus on:

- Robotics, engineering (D7)

Task 1: What do robbers look like?

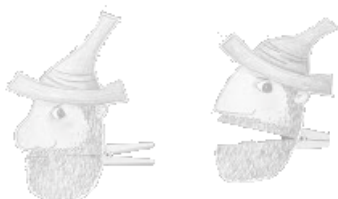
What does the classic robber figure look like? What's his hair like, does he have a beard? How well-groomed is he? What could be the reason for his unkemptness? Is his skin smooth, or is it scarred? Is he wearing something on his head?

The students create a robber figure who can open his mouth using a clothespin.

Every solution is correct!

Any tool and material can be used!

You can use the ideas and the list of materials from the ideas bazaar, develop your own ideas or simply let the children be creative.



Idea bazaar – some ideas:

- Building out of ArTeC Blocks, using Artec mechanisms
- Drawing
- Creating computer graphics

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

Developmental fields:

In Focus:

- Fine motor skills
- Creativity
- Work of mechanical structures

In addition:

- Attention
- Subject concentration – Physics, Arts
- Talent development

Task 2: Which objects and characteristics are typical of a robber?

The students should think about: what tools, objects, and clothes are the most characteristic of a robber figure. The figures on the page (small squares) should be cut out and glued to the appropriate place on the table to solve the Sudoku table according to the classic rules. (Each figure can appear only once in each row, each column and each 3x3 square).

Talented students should make their own sudoku, based on the pattern. In the case of talent development, let's study the mathematics of sudoku.

Idea bazaar – some ideas:

- Solve the sudoku table
- Create sudoku yourself, in 4x4, 6x6, or 9x9 formats

Developmental fields:

In Focus:

- Fine motor skills
- Creativity
- Orientation
- Logic thinking

In addition:

- Attention
- Subject concentration – Mathematics, IT
- Talent development



How to manage output:

Take some photo or scan the solved Sudoku-mazes. Save the own Sudoku-mazes on your computer. You can give these as a task for other pupils or show them as examples.

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 L1 P5

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Task5: Create a treasure chest!

Students make their own treasure chest. Discuss what can be kept in a treasure chest. How big should a treasure chest be? How to make it safe? Come up with mechanical solutions that allow us to notice when someone has opened the chest. Let's give free space to their creativity, any material can be used.

Every solution is good!

Any tool or material can be used!

Idea bazaar – some ideas:

- Materials to use: construction paper, glue, scissors, paints
- Print out the lock template

You can find details about the different solutions in the idea sheets!

Developmental fields:

In Focus:

- Fine motor skills
- Creativity

In addition:

- Subject concentration – Arts
- Talent development



Task 6: Write handcraft instructions

One of the most common forms of writing tasks is the description. In lower grades, process description is an important point of mother tongue teaching. Make the Handcraft instructions based on the attached pictures. The pupils cut out the pictures and determine the order. This supports them by creating the process description.

For older pupils, you can make the task more difficult by providing more pictures. In this case, use any number of the phase photos from the second page.

Every solution is good!

Idea bazaar – some ideas:

- Brainstorming about craft instructions and the possible order of the pictures
- Inveting similar tasks

You can find details about the different solutions in the idea sheets!

Developmental fields:

In Focus:

- Language development
- Seriality
- Creativity

In addition:

- Subject concentration – Mother tongue, Arts
- Talent development



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**S12
T3
D7
L2 P3**

Focus on:

- Robotics, engineering (D7)

Goals of the lesson:

- Text comprehension
- Problem solving
- Decision making
- Organizing group work

After peeling a lot of potatoes for the evil wizard, Kasperl wants to escape to free his friend Seppel from Hotzenplotz's captivity. He is happy to see that the window in his room has no bars and can be opened from the inside. He waits until the castle is quiet and then wants to climb over the fence. Unfortunately, he does not succeed, as the castle fence is protected by magic, and the evil sorcerer Petrosilius Zwackelmann wakes up and finds out about the escape attempt.

Main features and interactions of the characters

Charakter	Features	Interactions
Kasperl	Clever, he wants to escape from the castle, thinks of his friend	Can talk, climbs through the window, climbs the fence but falls back
Petrosilius Zwackelmann	Evil wizard	Casts magic with snapping the fingers, throws lightning through the tower window

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!

Suggestions

- Discuss, how people move, do some leg and arm movements together and have the children notice the phases of their own movements
- Build simple figures with movable legs and arms from ArTec blocks
- Explore your own movements when climbing and falling
- Brainstorm with the children how lightning bolts could be represented



Your name _____

Build _____

Kasperl
Petrosilius Zwackelmann



Your name _____

Be attentive, your robot should be able to: _____

Move, talk, raise the hand, climb, fall down, throw lightning, snap



Your name _____

There also should be: _____

Magic castle, kitchengarden, fence, castle tower with window



Your name _____

Think over: _____

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

Suggested materials

- ArTec Blocks (at least the 112 pcs set)
- Storyline template
- pencil

THE ROBBER HOTZENPLOTZ

AN ADVENTURE IN THE DARK (T3)



S12
T3
D7
L3-4
P4

Suggested materials

- ArTeC Blocks (at least the 112 pcs set) and ArTeC robotics set (1 Studuino motherboard, 2 DC motors, wheels, 2-3 servo motors, 2 Touch sensor, 1-3 IR Photoreflectors, 1-2 Buzzer, 1 sound sensor)
- Mindmap or Chart draft, Storyline
- Character cards and Robotic task card template
- Pencil

Suggestions

- Think about what gestures people use when they are afraid or when they threaten others
- Collect possibilities for how the robot could be controlled to move along a specific route
- Collect possibilities for detecting when the robot arrives to an object

Focus on:

- Robotics, engineering (D7)

Goal of the lesson:

- Fine motor skills
- Problem solving
- Decision making
- Life skills

How to fill in the Robotic card?

- Choose the robot's activity and the complexity of the program to match the child's abilities, based on the character card, the developmental aspect and the programming level.
- If necessary (e.g. for clarification or differentiation), additional robot cards can be filled in.
- Design the robot with several ways of building/programming!
- Complete the robot cards in the target language!
- Not all columns of the table need to be filled in, only those relevant to the robot's specific operation.
- Based on each row of the table, describe the robot's operation in the target language using grammatically correct sentences.

Arm
Move ahead
Detect obstacle

Robotic task card

The name of my robot: _____

The parts I need for my robot:

Accelerometer	DC motor	IR Photoreflector	Touch sensor	Buzzer	Sound sensor
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Choose the parts you need from the list above and write them in the table below.

This is how I build and program my robot:

What do I want?	What do I need?	What do I want?	What do I need?	What do I want?	What do I need?

This is how my robot will work: Write it in complete sentences using the table above!

Related topics in the Technical corner

- Programming DC motor (2.a)
 - Winding the motor until the sensor detects change (2.b, 2.c)
- Programming servo motor
 - Moving the arm or tail to up and down (3.b)
 - Step motor (3.c)
- Testing and programming Touch sensor (4.a, 4.b, 4.c)
 - Programming Accelerometer (4.f)
- Using Buzzer (6.a, 6.b)

Static figure
Kasperl or the wizard,
arms and legs can be
moved.
Geared hand pulls
Kasperl back

PROG1

DC motorised, geared
mechanism pulls
Kasperl back

PROG2

Zackelman illustrated
by a crane

PROG3

Overhead crane
illustrates Zackelman

PROG4

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P5

Ideas for robots on different programming levels

Static figure
Kasperl or the wizard,
arms and legs can be
moved.
Geared hand pulls
Kasperl back

PROG1

DC motorised, geared
mechanism pulls Kasperl
back

PROG2

Zackleman illustrated by
a crane

PROG3

Overhead crane
illustrates Zackleman

PROG4

Kasperl and Zackleman

P1 Kasperl and the Magician

- Static figures
- Build Kasperl, his arms can be moved on axes
- OR
- A hand with a cogwheel construction uses a magnet to pull Kasperl back

P2 Hansel

- A programmed hand with a DC motor similar in design to P1 pulls Kasperl back using a magnet
- The hand reaches for a Touch sensor and pulls Kasperl back to another Touch sensor

P3 Zackleman in the tower

- The hand pulling back Kasperl is mounted on a crane arm
- The crane can be steered left or right with 2 Touch sensors and an Accelerometer is used to lower and raise the magnet, which pulls Kasperl back

P4 The scene

- Construction and control of the crane is similar to P3, but to set the horizontal direction, the servo motor is stepped and controlled by 2 Touch sensors
- A small Zackleman is mounted on the crane using a servo motor and when it jerks Kasperl back for the third time, the Zackleman rises and calls out to Kasperl using Buzzer.

