

THE ROBBER HOTZENPLOTZ THE MAN WITH THE SEVEN KNIVES (T1)



**S12
T1
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.

THE ROBBER HOTZENPLOTZ THE MAN WITH THE SEVEN KNIVES (T1)



S12
T1
D7
L1 P4

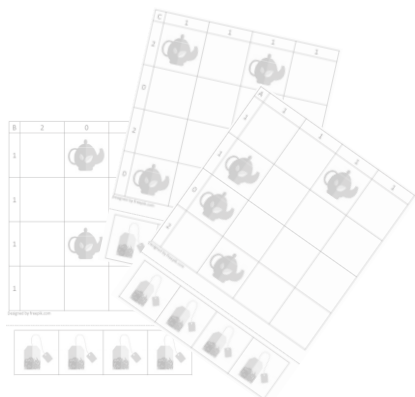
Focus on:

- Robotics, engineering (D7)

Task 3: What do you need for having a tea?

Of course, a tea filter and a nice pot. Students may place only one filter next to each teapot, and the corners of the filters must not come into contact with each other. As a help, we have specified the number of filters in the given row and column at the edge of the grid.

The student may complete our logic games, but they may also create similar ones themselves.



Idea bazaar – some ideas:

- Complete the logic game
- Create similar games yourself

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

Developmental fields:

In Focus:

- Orientation
- Attention
- Logical thinking
- Text comprehension

In addition:

- Concentration
- 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.

Task 4: How do old coffee grinders work?

How does the crank arm move? Think about what parts you can drive with it. Create simple animated images using Canva, Pivot animator or Scratch.

- How does a traditional coffee grinder move?
- How does the hammer move during hammering?
- How does the handcart wheel move?

Idee bazaar – some ideas:

- Creating animated images
- Creating presentations about how simple mechanical designs work.

Details of the various solutions can be found in the idea sheets!

Developmental fields:

In Focus:

- Physics, robotics, engineering
- Creativity
- Presentation skills

In addition:

- Subject concentration
–Physics, IT, Arts
- Creativity
- Talent development



How to manage the output:

Create video recordings or screenshots of the animations.

THE ROBBER HOTZENPLOTZ THE MAN WITH THE SEVEN KNIVES (T1)



**S12
T1
D7
L2 P3**

Focus on:

- Robotics, engineering (D7)

Goals of the lesson:

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

Grandmother sits comfortably in the garden and waits for her grandchild, Kasperl, and his friend, Seppel. She is particularly fond of the children because they gave them a coffee grinder that plays her favorite song: Nuts in May. The robber Hotzenplotz is up to mischief in the area. He shows up and steals Grandmother's special coffee grinder. When the robber leaves, Grandmother faints.

Main features and interactions of the characters

Charakter	Features	Interactions
Grandmother	Old, shy, loves her grandchild Kasperl and his friend, can bake wonderfully	Speaks, grinds coffee, bake pie with whipped cream, sits on the bench in front of her house, faints
Hotzenplotz	Robber with seven knives	Move, hold a gun, speak
Coffee grinder	unique	Plays Grandmother's favorite song while grinding

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
- Research on the internet, what Grandmother's song sounds like. Look for notes and discuss with the students how the individual tones can be played with the buzzer



Your name

Build



Your name

Be attentive, your robot should be able to:



Your name

There also should be:



Your name

Think over:

Grandmother
Hotzenplotz
the coffee grinder

Move, talk, raise hand(s),
fall over, play music, turn
the crank, hold the gun

Grandmother's house
Garden bench
Trees
Coffee grinder, Gun

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)
- Map of Europe
- Storyline template
- pencil

THE ROBBER HOTZENPLOTZ THE MAN WITH THE SEVEN KNIVES (T1)



S12
T1
D7
L3-4
P4

Suggested materials

- ArTeC Blocks (at least the 112 pcs set) and ArTeC robotics set (1-2 Studuino motherboards, 2 DC motors, wheels, 2-3 servo motors, 1-5 Touch sensors, 1 IR Photoreflectors, 1-2 Buzzer)
- 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

Arm
Move ahead
Detect obstacle

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.

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 (3.a)
 - Moving the arm or tail to up and down (3.b)
- Testing and programming Touch sensor (4.a, 4.b, 4.c)
 - 4 Touch sensor remote controller (4.e)
- Testing and programming IR Photoreflector (7.a, 7.c, 7.e)
 - Using an IR Photoreflector for detecting an object (7.d, 7.e)
 - Line tracing robots using 1 IR Photoreflector
 - Labyrinth-traversing robots
- Using Buzzer (6.a, 6.b)
- Using random numbers (10.a)

Robotic task card

The name of my robot: _____

The parts I need for my robot:

Part	Quantity	Notes
DC motor	1	
Servo motor	1	
Touch sensor	1	
IR Photoreflector	1	
Buzzer	1	
Random number generator	1	

This is how I build and program my robot:

Step	What I do	What I see	What I hear	What I feel	What I think
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

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

Static figure
Grandmother or
Hotzenplotz
They can move their
arms

PROG1

Grandmother sits on
the garden bench and
grinds coffee
OR
She sits on the bench
and faints when the
robber comes

PROG2

The coffee grinder:
The hand crank turns
It plays the song *Nuts*
in May

PROG3

Coffee grinder spins
and plays the tune at
random speed

PROG4

THE ROBBER HOTZENPLOTZ THE MAN WITH THE SEVEN KNIVES (T1)



S12
T1
D7
L3-4
P5

Ideas for robots on different programming levels

Static figure: Grandma
or Hotzenplotz, with
movable arms

PROG1

Grandma sitting on the
garden bench grinding
coffee
or
Sits on the bench and
faints when the robber
comes

PROG2

The coffee grinder:
The hand crank spins
plays the tune of Nuts in
May...

PROG3

Coffee grinder spins and
plays the tune at
random speed

PROG4

Grandma, Hotzenplotz and the coffee grinder

P1 Grandma, Hotzenplotz

- Static figures
- Let's build Grandma, Hotzenplotz, Kasperl and Seppel! Their arms can be moved on axes

OR

- Build the coffee grinder, driven by a DC motor connected to a battery holder

P2 The musical coffee grinder

- Build the coffee grinder in the same way as P1
- The DC motor and 1 Touch sensor and 1 Buzzer are connected to a programmable motehrboard (Attention! The DC motor must be connected to port M2 for the Buzzer to work properly.)
- When the Touch sensor is pressed, the coffee grinder lever starts rotating, and meanwhile, using the Buzzer, the melody is played

P3 Controllable coffee grinder

- The coffee grinder is constructed in the same way as in P2
- The grandmother rolls up to the coffee grinder on a 5-button remote controlled robot, raises her arm with a servo motor mounted on her shoulder, then strikes and pushes the button, which starts the coffee grinder
- The first press of the button plays the first section, the next press, and so on, until the end of the tune
- After the last melody part, the next press starts the melody from the beginning
- The coffee grinder arm always rotates with the music

P4 Random speed coffee grinder

- The coffee grinder is constructed in the same way as in P2
- The grandmother is built in the same way as in P3, but an accelerometer and a push button are used for control
- Pressing the Touch sensor of the coffee grinder causes the coffee grinder arm to rotate at a random speed, 1 IR Photoreflector is used to measure the rotation speed of the coffee grinder arm
- After one lap, the song plays at the corresponding speed while the arm continues to rotate

