

MASTER EDER AND HIS PUMUCKL

PUMUCKL GOES TO SCHOOL (T3)

S20
T3
D3
L1 P3



Focus on:

- Spatial orientation (D3)

Task 1: What does a goblin look like?

What do you think a kobold looks like? What is his hair like, what clothes does he wear? Is it well groomed? What could be the reason for its unkempt appearance? Does he have any special features? The pupils create a puppet that is suitable as a decoration or gift.

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 – Arts, Crafting
- Talent development

Task 2: How is it possible for goblins to be invisible?

The pupils consider when objects are invisible, how they can still know their presence, how can they possibly be made visible?

The pupils research recipes for invisible inks on the Internet or use the one from the idea bazaar.

The pupils can make the invisible ink themselves, or use ready-to-use invisible ink.

They draw goblins or write messages with the invisible ink. Finally, they make the ink visible.

Idea bazaar – some ideas:

- Research recipes for invisible ink on the internet
- Make your own invisible ink
- Experimenting with the invisible ink

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

Developmental fields:

In Focus:

- Orientation
- Logical thinking
- Seriality

In addition:

- Attention
- Subject concentration – IT, chemistry, drawing
- 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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S20
T3
D3
L1 P5

Focus on:

- Spatial orientation (D3)



Task5: Design a pencil case!

The pupils design their own pencil holder.

Discuss how big should a pen holder be? What does it depend on?

Research suitable figures on the Internet or use the template. Be careful, two figures are on top of each other so that tracing requires more attention.

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: Coloured paper, glue, scissors, colours, tracing paper
- Print out the template

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

Developmental fields:

In Focus:

- Fine motor skills
- Creativity
- Attention

In addition:

- Subject concentration – Arts, Crafts
- Talent development



Task 6: Making a key ring or kitchen magnet

For this purpose, work with shrink film or reuse plastic packaging material.

Stick magnets onto the finished objects or thread a key ring into the hole. Also makes an excellent gift.

Give the children free rein to their creativity!

Every solution is right!

Any tool and material can be used!

Idea bazaar – some ideas:

- Working with shrink film
- Experimenting with recycled materials

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

Developmental fields:

In Focus:

- Fine motor skills
- Seriality
- Creativity
- Attention

In addition:

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



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PUMUCKL GOES TO SCHOOL (T3)

S20
T3
D3
L2 P3



Focus on:

- Spatial orientation (D3)

Goals of the lesson:

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

Pumuckl is having fun at school. He tries to be nice, but is a little bored. When the teacher leaves the room, the children discover a chimneysweep on the roof opposite and all run to the window. Meanwhile, Pumuckl is drawing ships everywhere, but nobody can see him. When the teacher returns, he is disappointed and thinks that someone from his class has scribbled on the papers.

Main features and interactions of the characters

Charakter	Features	Interactions
Teacher	Strict but friendly drawing teacher	Explains, leaves the room, comes back in
Children	Easily distracted, not very obedient	They run to the window, rumble
Pumuckl	Invisible, likes to draw ships, he thinks he is nice when he draws something on every page	Hops from table to table, draws ships
Chimney-sweep	Dressed in black	He does his job

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
- Discuss which rules apply in your class. How should the pupils behave when the teacher leaves the room? Why?
- What does a chimney sweep do? What tools, colours, etc. characterise him?
- Complete the work assignment in the story and draw reeds.
- Research on the Internet what kind of plant reeds are and what they are used for. Are reeds grown in your country? Do you have any nature reserves with large areas of reeds? What animal species live there?

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!

Suggested materials

- ArTeC Blocks (at least the 112 pcs set)
- Map of Europe
- Storyline template
- pencil


Character task cards


 Your name _____
 Build _____


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


 Your name _____
 There also should be: _____


 Your name _____
 Think over: _____

Pumuckl, teacher, children, chimney sweep

move, talk, jump, climb, draw

Classroom, school desks, a roof where the chimney sweep works

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

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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, 1 Touch sensor, 1 IR Photoreflectors, 1-2 Buzzer)
- Mindmap or Chart draft, Storyline
- Character cards and Robotic task card template
- Pencil

Focus on:

- Spatial orientation (D3)

Goal of the lesson:

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

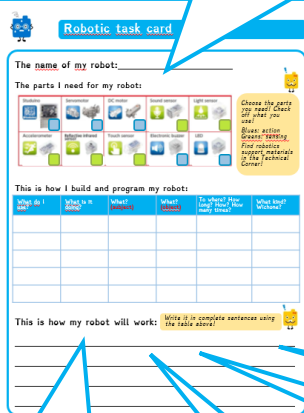
Suggestions

- Think about how robots can solve the problem of all the children getting up at once and running to the window.
- Collect possible ways to visualise the rumbling and commotion in the classroom.
- How could you illustrate the invisible Pumuckl jumping from table to table? What possibilities are there to follow his path?
- Plan a mechanism that draws ships. How would it be possible to save several figures for the drawing robot so that the user could choose the desired one?

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 activity 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!
- Fill in 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.

Get up and walk
Leaning through the window
Draw



Robotic task card

The name of my robot: _____

The parts I need for my robot:

Part	Quantity	Notes
DC motor		
IR Photoreflector		
Buzzer		
Touch sensor		
Servo motor		
Wheels		
ArTeC blocks		

Choose the parts you need. Check off each one.

Draw action scenes. Write down the robot's support materials in the Technical corner.

This is how I build and program my robot:

Step	Build	Program	Test	Describe	Draw	Write
1						
2						
3						
4						
5						

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
 - Winding the motor until the sensor detects change (4.b, 4.c)
- Programming servo motor
 - Moving the arm up and down (3.b)
- Testing and programming Touch sensor (4.a, 4.b, 4.c)
- 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 (7.f)
- Using Buzzer (6.a, 6.b)
- Using random numbers (10.a)

Static figures
Children and a
teacher in the
classroom

PROG1

The teacher talks and
leaves the room, then
returns later
OR
Children run to the
window and talk to
each other

PROG2

The invisible Pumuckl
draws ships on the
drawing sheets

PROG3

The chimney sweep
climbs onto a roof,
lowers his broom into
the chimney

PROG4

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P5

Ideas for robots on different programming levels

Static figures
Children and a teacher
in the classroom

PROG1

The teacher talks and
leaves the room, then
returns later
OR
Children run to the
window and talk to each
other

PROG2

The invisible Pumuckl
draws ships on the
drawing sheets

PROG3

The chimney sweep
climbs onto a roof,
lowers his broom into
the chimney

PROG4



Teacher, children, Pumuckl and the chimney sweep

P1 Teacher and children in the classroom

- Static figures
- Build the figures so that they look different
- The teacher should be recognisable, he could be taller than the pupils or be depicted by standing

P2 Teacher and children in the classroom

- Build the figures from P1
- They can talk with the help of buzzers
- They can walk using DC motors and stop in front of an barrier (at the window): use a touch sensor or IR photoreflexor to do this

P3 Pumuckl

- Build a drawing robot to represent an invisible hand scribbling ships on the drawing sheets
- Experiment with different programs. The user should have a choice of 3-4 figures and should be able to choose what the robot draws. This can be solved with push buttons, for example.

P4 Chimney sweep

- Build the figure of a chimney sweep who can climb onto the roof, e.g. on all fours. Use cogwheels and bars for its movements.
- Once at the top, the figure raises and lift his hand with the broom. Both movements can be performed using servomotors.
- The chimney sweep lowers his broom into the chimney and pulls it back again. Add a string to your figure, with a black block (broom) at the end. The lowering and raising is done using a DC motor that can wind the string onto a suitable spool.

