

BOBULA MIRACLE PYJAMAS (T2)



S16
T2
D7
L1 P3

Focus on:

- Physics, Robotics, Engineering (D7)

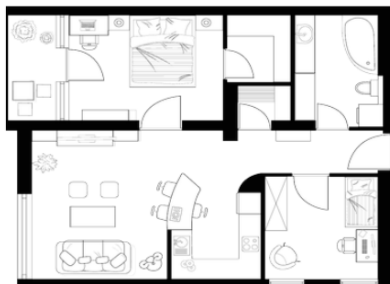
Task1: Making a floor plan

Draw a floor plan of a family house on a sheet of paper. Name the rooms. Pay attention to the dimensions!

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:

- Draw one side of a building block and one side of a matchbox.
- Reduce/enlarge the sides of the objects in the previous exercise by half!
- Make a floor plan (I5)
- What is a clean room?

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

Developmental fields:

In focus:

- Social competences
- Fine motor skills
- Creativity

In addition:

- Life skills
- Subject– geometry, ethnography
- Talent management



Task2: Making a house

Build a house based on the floor plan of exercise 1. Work in pairs! Build a village from the houses!

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:

- They can use recycled materials, textiles, boxes, cardboard, stones, rubber glue, etc. (I5)
- How can we make our house green?

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

Take photos of the construction works in progress and finished.

Developmental fields:

In focus:

- Fine motor skills
- Spatial orientation
- Creativity

In addition:

- Life skills
- Subject – art, technology education
- Talent management

How to manage output:

Take a video recording of the dramatized situation!

BOBULA MIRACLE PYJAMAS (T2)



S16
T2
D7
L2 P3

Miracle pyjamas

Bobula felt like a seal. Grandma washed her, because she was as muddy as a radish. The worst thing was that Grandma always let only a little water into the bath. When Bobula stood up, the water didn't even reach her ankles. Not even the smallest duck could take a bath in so little water.

- Bobula, tonight's story time is cancelled - Grandpa said after dinner. - We are going to the market very early.

Bobula had tears in the corner of her eyes. One had almost fallen loudly when Grandpa said he was showing her something she'd never seen before. He took her by the hand and led her into the front room. The front room was also called the clean room and was always kept in great tidiness.

Nobody came into this room, and if they did, they had to take off their slippers at the door. So they entered the mysterious room. Barefoot, of course. Quietly, lest Grandma should catch them. Grandpa opened one of the tall cupboards. He hummed for a while, then rummaged in the cupboard, pulled out something, closed the cupboard door and they were out. Bobula would have liked to have looked a little more carefully, though, because they had left a lot to discover. Slowly, Grandpa unfolded the garment he had pulled from the closet.

- Pajamas! Striped pyjamas! - yelled the little girl.

- These are miracle pyjamas!

- Miracle pyjamas? - whispered Bobula, and even her breathing became quieter.

- Yes, it was your mother's. Try it on! - Bobula carefully slipped into her miracle pajamas, but they were long. Grandpa lifted the blankets and Bobula jumped into bed.

- Does it make you invisible? - she asked excitedly. - No, but if you sleep in these pyjamas, you'll be bigger by morning. - As she fell asleep, she felt her arms and legs getting longer and longer.

Focus on:

- Physics, Robotics, Engineering (D7)

Goals of the lesson:

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

Suggestions

- Identify the characters in the text, with particular emphasis on the main plot points, character traits, emotions and movements.
- What do we do before going to bed at night?
- Why get up early when you go to the market?
- Have you been to the market?

Character	Feature	Action
Bobula	Likes bedtime stories	Get a pyjama want to go to market
Grandpa and Grandma	old kind love their granddaughter	grow vegetables give advice
pyjama	striped	big

How to use the character card:

Each student fills in his/her 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!


 Your name _____
 I am building: _____


 Your name _____
 Make sure your robot is able to: _____


 Your name _____
 There also should be : _____


 Your name _____
 Think over : _____

Bobula
Grandpa
Grandma

clean room, pyjamas

opens
sleeps
grows

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

S16
T2
D7
L3-4
P4

- ArTeC blocks (at least the 112 pcs set) and ArTeC robot set (at least 1 Studuino board, 4 servo motors, 1 sound sensor), drive rails, gears, axes
- Mindmap or Chart draft , Storyline
- Character cards and Robotic task card template
- Pencil

- Discuss with the children why a floor plan should be drawn.
- Talk about the peasant household.
- Why are slippers taken off before entering the room?

- 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!
- 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.

- Programming servo motor
 - Stepping the servo motor (3.c)
- Testing and programming the Sound sensor (9.a)
 - Activating the robot by voice (9.b)

PROG1

PROG2

PROG3

PROG4

BOBULA MIRACLE PYJAMAS (T₂)



S16
T2
D7
L3-4
P5

Ideas for robots on different programming levels

Figure with fold-out limbs

PROG1

The figure's limbs are folded out by servo motors

PROG2

The servo motor fold-out limbs of the figure grow randomly

PROG3

The figure's limbs grow with a gear and drive rail mechanism

PROG4

The miracle pyjamas make Bobula grow

P1 Fold-out figure

- Bobula sits on the bed.
- Figure with axes, allowing the arms and legs to be folded out, as if she was growing.

P2 Servo motor powered figure

- The figure is built in the similar way as in P1
- Her arms and legs are folded out (grown) by one servo motor each (4 in total)

P3 Randomly growing limbs

- The figure is built in the similar way as in P2
- Like in P2, the robot is started by a sound sensor
- The limbs are folded out (grow) in a random order, it is possible that one of them does not grow at all

P4 Drive rail mechanism

- We build the figure with its limbs attached to drive rails.
- The drive rails are moved by gears which are turned by one servo motor each.
- We connect a sound sensor to the robot. The limbs grow a little with every sound signal.

