

BOBULA YAAAY!! (T1)



**S16
T1
D7
L1 P3**

Focus on:

- Physics, Robotics, Engineering (D7)

Task1: Memory game, summer decoration or four seasons tree.

How do we dress in summer and winter?

Every solution is good!

Any tool or material can be used!

You can use the ideas and materials suggested in the Idea Bazaar, or use your own ideas or let the children find a solution using their creativity.



Idea Bazaar - some ideas:

They can use recycled materials, textiles, coloured paper, cardboard, glue (I1)

They can make paper slippers, buckets, etc. (I1)

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

Developmental fields:

Focus on:

- Social competences
- Fine motoric skills
- Creativity

In addition:

- Life skills
- Subject – geography
- Talent development



Task2: Making garden decorations

Make decorations with stones, paper, etc. What can we produce in the garden?

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. (I2)
- Paint with fruit (I3)
- They can make different domestic animals (I4)

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 motoric skills
- Spatial orientation
- Creativity

In addition:

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



How to manage the outputs:

Hang the pictures on the wall, on a big poster, and ask the children to arrange them according to a rule they decide. Store the objects in a wardrobe, to protect them from falls. Attach a label with the name of the group!

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L2 P3

YAAAY!!

When Bobula woke up, his grandfather was already working in the garden. He was growing round tomatoes, white and red crunchy peppers, radishes with tails and shaggy heads of lettuce. And strawberries. Bobula liked strawberries best.

Grandpa was picking the radish heads out of the ground, putting them in the wheelbarrow and pushing them into the yard. Grandma was sitting on a small stool, washing the radishes and tying them in little bundles.

Grandpa, are we going to eat all this today? - asked Bobula. -No, we're going to the market tomorrow morning! - said her grandfather.

- Yay! - she shouted.

Bobula decided to help her grandfather get ready. First she pulled radishes out of the ground like her grandfather. She pulled with all her strength, but no radish showed itself. Bobula had only the green leaves in her hands and even these fell to the ground.

She was angry for a while, but then she thought of helping Grandpa with the wheelbarrow. She jumped on the wheelbarrow, clung to the side and sang merrily. Safi heard her and suggested they should juggle with the radishes.

-They are too small and have tails, so let's juggle with tomatoes instead - Bobula suggested.

Safi immediately took three tomatoes. She threw one of them up, but the it had already fallen back down, and Safi, in order to catch it, threw the other two away by mistake. All three tomatoes ended up on the ground.

- Leave the tomatoes alone! - said Grandpa to them. - Go and put on your swimsuits.

Bobula and Safi were ready in a minute. They carried water in small buckets to the area of land where they had dug up the radishes earlier. Let the mud-sliding tournament begin! At that moment they both started running and sliding along the long track. Then they jumped up at lightning speed and quickly repeated the whole thing. Again and again! In the afternoon, when the two sliding champions were tired, they covered themselves in mud.

Focus on:

- Physics, Robotics, Engineering (D7)

Goal of the lesson:

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

Character	Feature	Act
Bobula	little girl knows little about the world	spends the summer with grandparents playing with a friend helps in the garden slipping
Grandpa and Grandma	elderly they are nice love their grandchildren	they grow radishes give advice
Pipin the rooster	Proud	walking around

Suggestions

- Identify the characters in the text, with particular emphasis on the main plot points, character traits, emotions and movements.
- How do we dress in summer?
- What animals live in the yard?
- What do people produce in the garden?
- What do you want to do during the summer holidays?

How to use the character card:

Each student fills in their own Character card:

- writes the name of the character
- their features, movements, reactions
- 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!

**Bobula and her friend
Grandparents
Pipin the rooster**

**collect radishes
sliding
carries water
juggling**

**yard
bucket
radishes and tomatoes**

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

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D7
L3-4
P4

Suggested materials

- ArTeC blocks (at least the 112 pcs set) and ArTeC robot set (at least 2 Studuino motherboards, 2 DC motors, 2 servo motors, 2 sound sensors, 2 buttons, 2 IR photoreflectors, 2 buzzers, 2 accelerometers), racks, gears, axes Anatomical models or pictures of mouths
- Mindmap or Chart draft , Storyline
- Character cards and Robotic task card template
- Pencil

Focus on:

- Physics, Robotics, Engineering (D7)

Goal of the lesson:

- Problem solving
- Decision making
- Body image

Suggestions

Sliding, running, rolling, harvesting vegetables

- Discuss with children how people grow crops
- Discuss with your children why vegetables are a healthy food
- Observe the movement of the rooster and the wheelbarrow
- Build a wheelbarrow from ArTeC

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!
- 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.

running
sliding
wheelbarrow pushing
juggling
crowing



Robotic task card

The name of my robot: _____

The parts I need for my robot:

Motor	Sensor	Sound sensor	Light sensor	Choose the parts you need! Check off what you use!
Accelerometer	Sound sensor	Sound sensor	Sound sensor	Green: action
Sound sensor	Sound sensor	Sound sensor	Sound sensor	Green: building
Sound sensor	Sound sensor	Sound sensor	Sound sensor	Find relevant support materials in the Technical Corner!

This is how I build and program my robot:

What do I see?	What is it doing?	What? (action)	What? (building)	To whom? (how many times)	What does it do?

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, 2.b)
- Programming servo motor (3.a, 3.b)
- Testing and programming the IR Photoreflector (7.a, 7.c, 7.d)
 - Using an IR Photoreflector for detecting an object (7.d)
- Testing and programming Sound sensor (9.a)
 - Activating the robot with sound (9.b)
- Using Buzzer (6.a, 6.b)
- Using Accelerometer (4.e)
 - Creating remote control using Accelerometer (4.e)
- Using random numbers (10.a)

The children slide using a string pulled by a DC motor. The children move their arms and legs while sliding

PROG1

The sliding figures are activated by a button. When a button is pushed, the figures, slide and move their arms and legs.

PROG2

The figures slide back and forth. We can control the direction of the sliding with an accelerometer.

PROG3

The figures slide back and forth at random. We can control the direction and speed of the sliding with an accelerometer.

PROG4

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P5

Robot ideas for different programming levels

The children slide using a string pulled by a DC motor. The children move their arms and legs while sliding

PROG1

The sliding figures are activated by a button. When a button is pushed, the figures, slide and move their arms and legs.

PROG2

The figures slide back and forth. We can control the direction of the sliding with an accelerometer.

PROG3

The figures slide back and forth at random. We can control the direction and speed of the sliding with an accelerometer.

PROG4

Bobula sliding in the mud

P1 Sliding with a DC motor

a) We build the children. We tie one end of a string to the figures and the other end to the wheel of a DC motor.

- The DC motors are connected directly to the battery holder, winding up the yarn as it rotates and pulling the figures along the track.

b) We build children who move their limbs while sliding.

- Their moving arms are powered by DC motors connected to a battery holder.

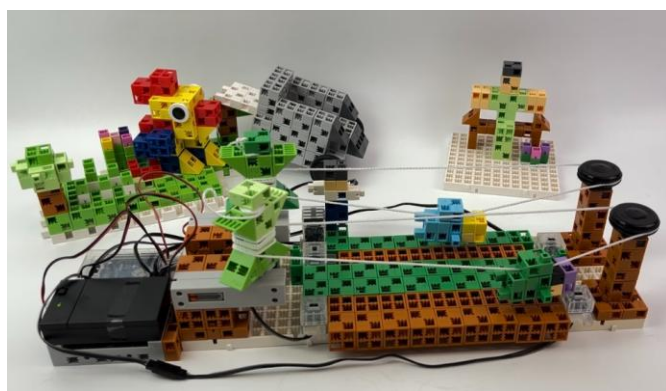
P2 Programmed sliding

a) The scene is built in a similar way to P1, but here the DC motor is connected to a programmable brain.

- Each child has 2 buttons: pressing one of them will start the DC motors to pull the figures with the string, pressing the other will stop the DC motors
- Each child also comes with a Buzzer, which sounds before the DC motors are switched on.

b) The 2 children are mounted on two separate robots. The figures and the moving limbs are built in a similar way to P1.

- 2 DC motors are connected to the robots. One is used to roll the figures forward, the other to move their limbs.
- Both robots are connected to 2 buttons each: pressing one makes them roll and move their limbs, the other stops them.
- Buzzers are used as in P2 a.).



P3 Happy sliding

a) We build a similar structure to P2, but with a DC motor at each end of the track. The figures are attached to each motor with a string.

- The figures can slide in both directions: while one DC motor winds up the yarn, the other winds it down.
- The robot activates when the sound sensor fitted to it detects „Grandpa’s yell“.
- There is an IR photoreflexor at each end of the track - when it detects that the figures have arrived, the DC motors start rotating in the opposite direction.

b) The robots are built in a similar way as in P2, but with a servo motor between the figure and the DC motor it is mounted on.

- An accelerometer is attached to the robot and the direction of the sliding is determined by tilting it: turning the servomotor, the figure always faces the direction of the sliding.

P4 Crazy sliding

a) The robot is built in a similar way to P3.

- It works in a similar way to P3, but the DC motors pull the figures at random speeds and for random lengths of time.

b) The robots are built in a similar way to P3.

- It also works in a similar way to P3, but here, in addition to the direction of movement, the speed of the sliding and of the arm movements are also determined by the inclination of the accelerometer.

