

THE FIVE LOAVES EATING ON THE WAY (T1)

S1
T1
D7
L1 P3

Focus on:

- Engineering (D7)



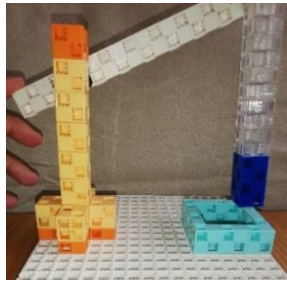
Task1: What does the landscape look like?

Students create elements of the landscape.

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:

- Building environment out of ArTeC Blocks
- Building environment out of recycled materials
- Drawing
- Creating computer graphics

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

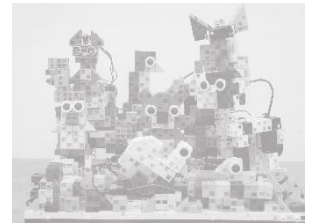
Developmental fields:

In focus:

- Spatial orientation
- Fine motor skills
- Creativity

In addition:

- Attention concentration
- Subject concentration – Natural Sciences
- Talent development



Task2: What does a puppet with movable limbs look like?

Students create a human figure with movable limbs.

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:

- Building a puppet out of ArTeC Blocks
- Cutting and binding a cardboard puppet
- Drawing series
- Animation editor

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

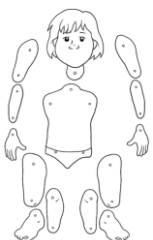
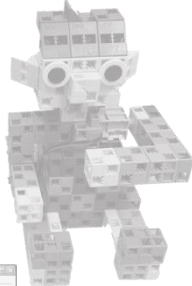
Developmental fields:

In focus:

- Fine motor skills
- Spatial orientation
- Creativity

In addition:

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



How to manage output:

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!

THE FIVE LOAVES EATING ON THE WAY (T1)

S1
T1
D7
L2 P3



Focus on:

- Engineering (D7)

Goals of the lesson:

- text comprehension
- problem solving
- decision making
- organizing group work



Once upon a time, on a summer day, two men were travelling together along a road. One had three loaves of bread in his sack, the other, two. After some time they felt hungry and stopped in the shade of a weeping willow next to a water well. Each took the bread out of his sack, and to enjoy their meal more, they sat to eat together.

As they were taking the bread out from their sacks, a third traveller, unknown to them, caught up to them and, stopping beside them, bade them good day. He then asked them to share their food with him, as he was very hungry, had no provisions, and there was no place to buy anything. "Come, good man! Share our hospitality" said the two travellers to the stranger, "for, thank God, where two can eat, there is always enough for a third. The stranger, being very hungry, did not wait to be asked twice, but sat by the other two and all three ate dry bread and drank water from the well, for there was nothing else to drink. And the three of them ate and ate and ate, until the five loaves were all eaten, as if they had never been there at all.

Main features and interactions of the characters

Character	Features	Interactions
Ioan	Walks, sits, eats, 2 loaves	Move together, talk to each other and to the Stranger
Stefan	Walks, sits, eats, 3 loaves	
Stranger	Walks, sits, eats, 5 coins	Talks to Ioan and Stefan, gives coins

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!

Water well

Stefan, Ioan

Stranger

Walk

Sit, Eat

Raise their arm

Pull up the bucket

Water well

Tree

5 loaves of bread

The loaves should be divided into three pieces

The main actions of the story

Divide the text segment into pieces

Make a list about things needed


Media files needed

Suggestions

- Discuss how human movements are made
- Make some movements together and the children should perceive the phases of their own movements
- Show movable anatomical models to the children
- Build a simple figure with movable legs, arms or mouth from ArTeC Blocks


Suggested materials

- ArTeC robot and Blocks (at least the 112 pcs set)
- Anatomical models or pictures of mouth, arms and legs
- white paper, pencil, folder




Your name _____

Build _____




Your name _____

Be attentive, your robot should be able to: _____



Your name _____

There also should be: _____



Your name _____

Think over: _____

THE FIVE LOAVES EATING ON THE WAY (T1)

S1
T1
D7
L3-4
P4



Suggested materials

- ArTeC Blocks (at least the 112 pcs set) and ArTeC robotics set (at least Studuino motherboard, 2 DC motors, wheels, 1 servo motor, 1, 2 or 5 Touch sensor, 1 IR Photoreflector)
- Anatomical models or pictures of mouth, arms and legs
- Photos, videos about different types of wells
- Mindmap or Chart draft, Storyline
- Character cards and Robotic task card template
- Pencil

How to fill in the Robotic card?

- Choose robot's „activity” and its programming complexity according to the Character task card, the developmental aim and the programming level that fits the child's skills.
- More Robotic cards can be filled in if needed (for clarification or for differentiation).

Focus on:

- Engineering (D7)
- Goals of the lesson:**
- fine motor skills,
- problem solving,
- decision making
- body image,
- simple machines

Suggestions

Eating

- Discuss how human movements are made
- Make some movements together and the children should perceive the phases of their own movements
- Show movable anatomical models to the children
- Build a simple figure with movable legs, arms or mouth from ArTeC Blocks

Well

- Collect informations about different types of wells
- Discuss simple machines like lever and pulley
- Build simple models with different technics

Arm
Leg
Mouth
Pulls up the bucket from the well

Robotic task card

Your name _____

Build a robot that can move it's _____

Use actuators and sensors for building:
 Senses are green
 Actions are blue
 Choose the needed parts!
 (Check the boxes)

Block	Sensor	DC motor	Sound sensor	Light sensor
Accelerometer	Infrared	Touch sensor	Electronic buzzer	LED

Build and program so that the robot _____

Use the Technical corner for robotic building materials!

Related topics in the Technical corner

- Programming DC motor
 - **Winding the motor a number of times (2.a, 2.b)**
 - Winding the motor until the sensor detects that the bucket is up (4.b, 4.c)
- Programming servo motor
 - Moving the arm to a given angle (3.a)
 - Repeated movement of the arm for a number of times (3.b)
 - Stepping the servo motor until the sensor detects that the bucket is up(3.c)
- 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)**
- Using random numbers (10.)
- Using variables, programming increasing value (11.c)

Eats moving his hand up and down to his mouth
Water is pulled up from the well

PROG1

Eating begins at the press of a button
Puts food into his mouth (raising his hand) until he runs out of food
Water can be pulled up from the well at the push of a button

PROG2

Eats, moving his hand with realistic (random) movements. Eats only when it gets food
Water can be pulled up from the well automatically

PROG3

Eats only when getting food. A hungry person eats faster
Pulls up water from the well as long as the button is pressed

PROG4

THE FIVE LOAVES EATING ON THE WAY (T1)

S1
T1
D7
L3-4
P5

Ideas for robots on different programming levels

Eats moving his hand up and down to his mouth
Water is pulled up from the well

PROG1

Eating begins at the press of a button
Puts food into his mouth (raising his hand) until he runs out of food
Water can be pulled up from the well at the push of a button

PROG2

Eats, moving his hand with realistic (random) movements. Eats only when it gets food
Water can be pulled up from the well automatically

PROG3

Eats only when getting food. A hungry person eats faster
Pulls up water from the well as long as the button is pressed

PROG4



Eating

P1 Build a person eating bread with movable arm

How to build:

- It can be achieved by movable parts without robotics OR
- Use the servomotor for programmable movement! Eating is putting the hand to the mouth and then getting another piece of food from the robot's activation until it is turned off

P2 Build a person eating bread, until he runs out of food

- Eating begins at the press of the Touch sensor
- Repeat the eating movement a number of times

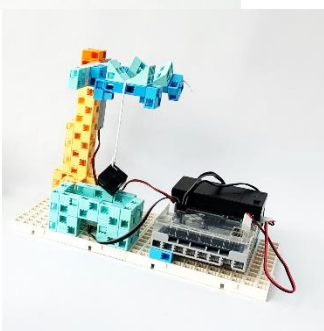
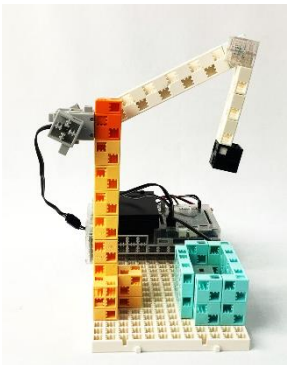
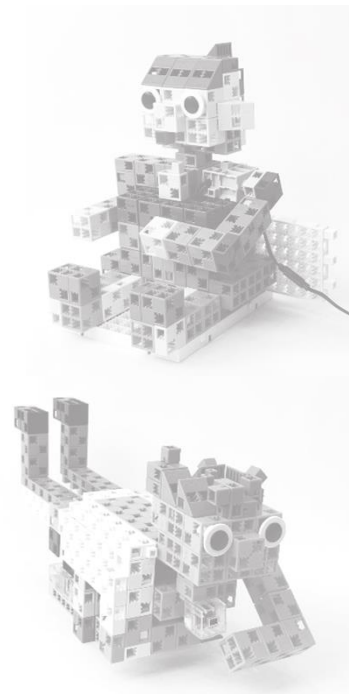
P3 Build the person eating bread, use programming for believable movements

- Wait with random values between the movements can make it look spontaneous. OR

- Sensors detect if the food is near its hand

P4 Build the person eating only when it has food

- Sensors can alert it if something is near the robot
- Light sensors are sensitive to light conditions (try to keep the same conditions)
- A hungry person eats faster



Water from the well

P1 Make a mechanical well or a shadoof to get water for the bread

How to build:

- Use axle or pulley – see the picture

P2 Get the bucket of water out by programming

- The movement begins at the press of a button
- A shadoof can be made with a servomotor

OR

- A well can wind up the rope with a DC motor

P3 Make an automatic well

- The well winds up the rope with a DC motor until the bucket gets to the rim of the well
- Use IR Photoreflexor to stop winding

P4 Sensor controlled well

- Controls the servo motor with Touch or IR Photoreflexor sensor to pull up the bucket until it gets to the rim of the well