

# VUK RESCUING HAART (T4)

S7  
T4  
D1  
L1 P3



## In focus:

- Text comprehension (D1)

**Task1: What is the best habitat for animals? Where do wild animals live in the forest and domestic animals live around the house?**

**Make a bookmark with the characters from the novel! Find videos for inspiration for making Vuk and Su!**

### Every solution is good!

Any kind of tool and material can be used!  
You can use the ideas and list of materials from the Idea Bazaar, come up with your own ideas or just let the children be creative.



### Idea Bazaar – some ideas:

- Depicting dens of animals, human habitations (I6)
- Making bookmarks (I3)
- Coming up with names for animals (I8)
- Collect animal sayings and proverbs (I8)
- Search for tracks in the woods, use the TRACKS memory card (I4)

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

### Developmental fields:

#### In focus:

- Social skills
- Nature conservation
- Attention
- Creativity
- Spatial orientation

**Task2: Make Vuk's family tree! Use different technics and tools! Make your own family tree too!**

### Every solution is good!

Any kind of tool and material can be used!  
You can use the ideas and list of materials from the Idea Bazaar, come up with your own ideas or just let the children be creative.

### Idea bazaar – some ideas:

- Making a family tree (I1)
- Collect leaves and use them to make animal pictures (I3)
- Playing tic-tac-toe (I7)
- Collect animal sayings and animal names (I8)

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

### Developmental fields:

#### In focus:

- Social skills
- Fine motor skills
- Spatial orientation
- Creativity
- Algorithmic thinking



### How to manage output:

The groups should try out the board games and other groups have made too. Make them available for other classes to try out in nature conservation/environmental education lessons or on Eco-days. The finished animal pictures and family trees should be displayed on the school's bulletin board. Label the board games with the name of the group!

# VUK RESCUING HAART (T4)

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L2 P3



### In focus:

- Text comprehension (D1)

### Goals of the lesson:

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

### Suggestions

- Talk about the living conditions and needs of captive animals.
- Show children videos of digging foxes.



### Main features and interactions of the characters

Character	Features	Interactions
Haart, fox	Brave, careful	Watches, digs
Vuk, fox	Brave, careful	Watches, digs, guards
Karack, fox	Brave, careful, deliberate	Watches, digs, guards

Lightning was flashing above the clouds, and by the time they got to the forest house, it was already raining. They crouched down next to the fence, because in the house the lights were still on. The dogs were quiet, and the wind brought their smell to the foxes.

Karack and Vuk stopped in front of Haart's cage. Karack directed the digging. The dogs went inside the house, except for the sheepdog, which was curled up in its kennel.

The blasting wind and lashing rain blocked every sound.

The surface of the ground was hard, but underneath it got softer, and the digging got easier. Haart was digging from the inside. Karack and Vuk took turns digging from the outside, while the other stood watch.

The cage was closed from underneath too.

The storm began to pass, they had to hurry up with the digging. The sound of digging could be heard more and more clearly.

Suddenly, everything was silent. Haart's head slowly appeared from the hole.

### 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!**

Haart, Vuk

Digs  
Fast  
Moves  
Watches

The Ranger's house, buildings, trees


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



Your name \_\_\_\_\_

**Build** \_\_\_\_\_


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Your name \_\_\_\_\_

**Be attentive, your robot should be able to:** \_\_\_\_\_


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Your name \_\_\_\_\_

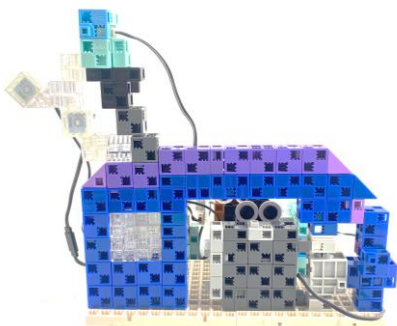
**There also should be:** \_\_\_\_\_

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Your name \_\_\_\_\_

**Think over:** \_\_\_\_\_



# VUK RESCUING HAART (T4)

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D1  
L3-4  
P4



## Suggested materials

- ArTeC Blocks (at least the 112 pcs set) and ArTeC robot set (2 Studuino motherboards, 2 Touch Sensor, 4 servo motors, 7 LEDs, 1 Light Sensor, gears, drive rails
- Mindmap or Chart draft, Storyline
- Character cards and Robotic task card template
- Pencil

## In focus:

- Text comprehension (D1)

## Goals of the lesson:

- text comprehension
- problem solving
- decision making
- expression of movement

## How to fill in the Robotic card?

Choose the 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).

## Suggestions

### Modelling of digging and scraping - Vuk

- Build simple moving figures from blocks and connecting elements
- Use a servo motor to express the digging movement

### Opening and closing a door and cage

- Build a simple opening door and cage out of blocks
- Use a servo motor to express the digging movement

Legs - digging, speed of movement  
Opening and closing the door,  
opening the cage

**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!)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Build and program so that the robot \_\_\_\_\_

Use the \_\_\_\_\_ al Corner for robot \_\_\_\_\_ helping materials!

## Related topics in the Technical corner

- Programming DC motor (2.a, 2.b)
- Programming servo motor
  - Moving legs to a given angle (3.a)
  - Repeated leg movements a given number of times (3.b)
- Programming and testing Light Sensor
  - Using Light Sensor to detect light (8.a, 8.b, 8.d)
- Using LED (5.a)
  - Flashing (5.b)
- Using Buzzer (6.a)

Haart sits in a cage with a manually-opened door. Vuk "digs" by moving back and forth

PROG1

Haart is in the cage, Vuk is digging outside the cage. The cage opens at the push of a Touch Sensor.

PROG2

Haart is in the cage, Vuk is digging outside the cage. The cage opens at a lightning strike. The Ranger's house has lights on, sometimes the door opens.

PROG3

Haart is in the cage, Vuk is digging outside the cage. The door to the Ranger's house opens at a lightning strike, the dogs come out, then go back in.

PROG4

# VUK RESCUING HAART (T4)

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D1  
L3-4  
P5

## Ideas for robots on different programming levels

Haart sits in a cage with a manually-opened door. Vuk "digs" by moving back and forth

PROG1

Haart is in the cage, Vuk is digging outside the cage. The cage opens at the push of a Touch Sensor.

PROG2

Haart is in the cage, Vuk is digging outside the cage. The cage opens at a lightning strike. The Ranger's house has lights on, sometimes the door opens.

PROG3

Haart is in the cage, Vuk is digging outside the cage. The door to the Ranger's house opens at a lightning strike, the dogs come out, then go back in.

PROG4



## Haart in the cage, Vuk digs

### P1 Vuk digs

- Building a cage and the figure of Haart.
- The door of the cage opens on an axle
- Vuk moves back and forth on a wheeled robot

### P2 Vuk digs

- 2 robots: Vuk and cage
- Haart's figure (not a robot) is in the cage.
- The door of the cage is moved by a DC motor, which is activated by a Touch Sensor.
- Vuk's upper legs dig using a servo motor.
- The program starts at the press of a Touch Sensor

### P3 Multiple robots functioning in coordination

- Haart - her eyes are lit in the cage - 2 LEDs (green)
- Vuk - scraping, digging at the cage while Iny waits, eyes lit
- Touch Sensor starts the program
- The front two legs are controlled by servo motors to create the scraping, digging movement
- When the Light Sensor detects a light at the top of the cage, he stops digging and the cage door opens, moved by a servo motor
- The Ranger's house - lamp lit inside the house (2 LEDs), opens and closes the door at random intervals. Servo motor moves the door
- Touch Sensor starts the program

### P4 Multiple robots functioning in coordination

- As in P3
- Lightning is detected on the roof of the Ranger's house with a Light Sensor
- When the door of the Ranger's house opens, the dogs come out (drive rail, gears, DC or servo motor)

