

# VUK

## HARVEST – ESCAPING THE WHEAT FIELD (T5)

S7  
T5  
D5  
L1 P3

### In focus:

- Social skills (D5)



**Task1: Solve the MAZE exercise! Imagine that during the harvest, the foxes were chased by the hunters and the harvesters. Help the foxes get out of the wheat field!**

#### 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:

- Solving the maze (I2)
- Search for tracks in the woods, use the TRACKS memory card (I4)
- Make matching pair card game
- Build an animal hiding place (I6)
- Collecting information from the library on harvesting tools (I6)

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

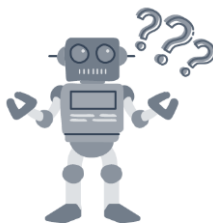
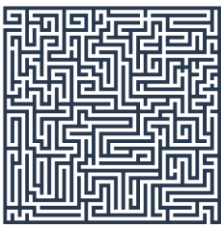
#### Developmental fields:

##### In focus:

- Social skills
- Attention
- Creativity
- Spatial orientation

##### In addition:

- Nature conservation
- Attention development
- Life experience



**Task2: Imagine and act out two situations: when animals show what outdoorsmen and conservationists are like in the forest, and when they show what people who are noisy and don't care about nature are like in the forest! How did your behaviour differ in the two situations?**

**How can we convince others of our opinions? Act it out!**

#### 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:

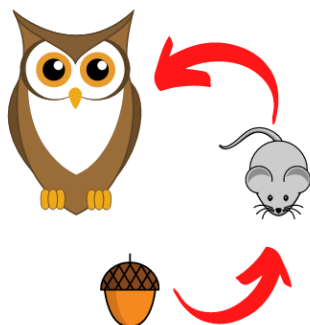
- Situation game (I5)
- Making a food chain (I1)

**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. Label the board games with the name of the group!

# VUK

## HARVEST – ESCAPING THE WHEAT FIELD (T5)

S7  
T5  
D5  
L2 P3



### In focus:

- Social skills (D5)

### Goals of the lesson:

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



### Suggestions

- Discuss what tools were used for harvesting in the past and today!
- Show the children videos of different tools in motion!
- Discuss what metacommunication tools are used in a debate

### Main features and interactions of the characters

Character	Features	Interactions
man with scythe		harvests
wheat field		moves
fox	afraid	crouches

It was mid-afternoon. There was only a small patch of wheat left to be harvested. The rangers were anxiously waiting for the foxes to show up.

The harvesters thought there were no foxes in the wheat field, because they would've been frightened by all the noise. They stopped working, and left the wheat field along with the rangers. They sat down to rest and eat.

Vuk, Karack and Haart crawled out from under the bush. They carefully left the cover of the wheat. Then they started running across the harvested wheat field as fast as they could. The rangers spotted them too late. The foxes ran away, into safety.

### 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!


Man with scythe,  
wheat field  
Foxes

Swing his scythe  
Stand guard  
Escape

Rangers, birds

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: \_\_\_\_\_

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## HARVEST – ESCAPING THE WHEAT FIELD (T5)

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T5  
D5  
L3-4  
P4



### Suggested materials

- ArTeC Blocks (at least the 112 pcs set) and ArTeC robot set (2-3 Studuino motherboards, 4 Touch Sensor, 1 IR Photoreflexor, 1 servo motor, 5 DC motors, 1 red LED, 1 Buzzer)
- Black duct tape
- Mindmap or Chart draft, Storyline
- Character cards and Robotic task card template
- Pencil

### 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).

### In focus:

- Social skills (D5)

### Goals of the lesson:

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

### Suggestions

#### Movement of the wheat field

- Using gears and blocks, the movement of a wheat field is imitated by mechanical transmission.

#### Harvesting man's movement

- Use blocks and accessory pieces to express the movement of the human hand and arm.

#### Foxes arguing

- What robotics parts can be used to express the debate?

### Movement of arms and legs Wheat field - blown by the wind



#### 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!

Studuino	Servomotor	DC motor	Sound sensor	Light sensor
Touch sensor	Electronic buzzer	LED	IR Photoreflexor	Servo motor

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

Use the Technical Corner for robot helping materials!

### Related topics in the Technical corner

- Programming DC motor (2.a, 2.b)
  - Turning on a small curve (2.c)
  - Random movement (2.f)
- Programming servo motor
  - Moving arm to a given angle (3.a)
  - Repeated arm movements a given number of times (3.b)
- Programming and testing IR Photoreflexor(7.a, 7.c, 7.e)
  - Line-tracking robot with 1 IR Photoreflexor(7.f)
- Programming and testing Touch Sensor (4.a)
  - Activating the robot by pressing the Touch Sensor (4.b)
  - Remote control from 4 Touch Sensors (4.d)
  - Use of LED (5.a)
  - Flashing (5.b)
- Use of Buzzer (6.a)
- Random numbers
  - Use of random numbers (10.a)

Figures of field, harvesting people, rangers. 3 foxes on a robot that moves forward when switched on

PROG1

The ranger walks back and forth, the foxes jump out, the ranger shoots

PROG2

The harvesting man walks around the wheat field. The wheat field sways in the wind. Birds fly around the tree.

PROG3

The foxes escape from their hiding place between the ranger and the harvester

PROG4

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### Ideas for robots on different programming levels

Figures of field, harvesting people, rangers. 3 foxes on a robot that moves forward when switched on

PROG1

The ranger walks back and forth, the foxes jump out, the ranger shoots

PROG2

The harvesting man walks around the wheat field. The wheat field sways in the wind. Birds fly around the tree.

PROG3

The foxes escape from their hiding place between the ranger and the harvester

PROG4



### Harvest

#### P1 Building the scene

- Building landscape, figures (foxes, harvesters, rangers, etc.)

OR

- Foxes on a robot with 2 DC motors, starts automatically when switched on

#### P2 Sly foxes

- 3 small foxes on 1 robot (2 DC motors, 2 Touch Sensors)
- Ranger on 1 robot (2 DC motors, 1 Touch Sensor, 1 red LED)
- Both robot programs are triggered by Touch sensor
- The ranger robot moves back and forth
- One of the children activates the fox robot by pressing the Touch Sensor, timing it so it does not to meet the ranger
- The ranger stops and shoots after 5 back-and-forths - red LED lights up

#### P3 Building and coordinating moving figures

- The harvester walks around the wheat field, stopping at intervals to swing his scythe. The wind blows through the wheat field and birds flutter around the tree next to it.
- **Harvester:** Touch Sensor starts the program.
- It uses an IR Photoreflector to track a line.
- Stops at predetermined intervals and uses servo motor to perform swinging motion.
- **Wheat field:** Touch Sensor triggers the program.
- Gears driven by a DC motor move the wheat stalks and the tree with the birds.

#### P4 Escape of the foxes through the field

- A combination of P2 and P3
- The harvester is equipped with 2 Touch Sensors, he stops at random intervals, this is when the foxes must be switched on
- The harvester stops when the Touch Sensor is pressed, turns towards the foxes and starts shouting, waving his hands. The direction of the turn is determined by which of the 2 Touch Sensors is pressed.

