

VUK WAHUR CHASES KARG (T2)

S7
T2
D8
L1 P3



In focus:
• Other subjects – natural sciences (D8)

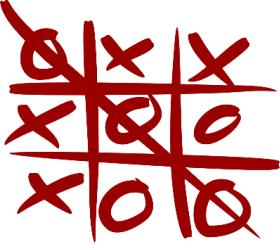
Task1: Discuss how animals protect their own hunting grounds. Use science books from the library!

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:

- Defend your territory, play tic-tac-toe (I7)
- Search for tracks in the woods, use the TRACKS memory card (I4)
- Make matching pair card game with a forest theme

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



Developmental fields:

In focus:

- Social skills
- Attention
- Creativity
- Spatial orientation
- Algorithmic thinking

In addition:

- Nature conservation
- Attention development
- Life experience

Task2: Act it out! How do animals find their way around? What can we call on to help us find our way around?

What do some forest animals feed on?

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

Idea Bazaar – some ideas:

- Make a map, talk about map markings e.g. stream, hill etc. (I2)
- Navigate by memory or by sound (I2)
- Create several different food chains! (I1)

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

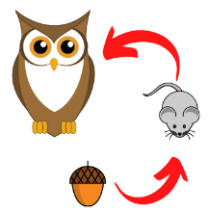
How to manage output:
The groups should try out the board games and memory cards other groups have made too. Make them available for other classes to try out in nature conservation/environmental education lessons or on Eco-days. Label the board games with the name of the group!

Developmental fields:

- Creativity
- Algorithmic thinking

In focus:

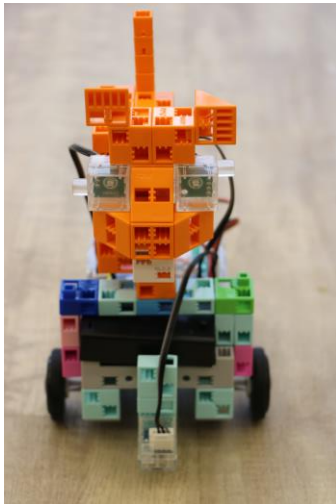
- Social skills
- Fine motor skills
- Spatial orientation



VUK

WAHUR CHASES KARG (T2)

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In focus:

- Other subjects – natural sciences (D8)

Goals of the lesson:

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

Suggestions

- Discuss how to resolve conflicts!
- Plot the route of the fox and the dog on paper based on the story.
- Use the map signs you learned in the previous lesson.

Main features and interactions of the characters

Character	Features	Interactions
Karg, fox	Clever, fast	Flees, hides
Wahur, dog	Fast, careless, angry	Chases

Wahur the dog was lying in wait in the yard.

Karg the fox turned around and started running toward the fence. Wahur chased after the fox. Karg ran for his life. Wahur wanted to catch the fox to give him to his master. His master will be proud of him.

Karg slid through a tight gap and kept running. Wahur squeezed himself through as well, and continued chasing the fox. The meadow was foggy. But Wahur followed his nose.

Karg jumped into the stream. He ran in the stream for a short while. Then he jumped out to the shore, and hid under a willow bush.

Wahur could hear the splash. He leapt across the stream and ran forward.

Karg ran backwards, on the way leading back to the village.

Wahur was searching for the fox, but he couldn't see him in the fog. He couldn't smell the fox either. Karg had tricked him. He was very angry.

He sniffed around in the grass, but couldn't smell the fox anywhere.

He started on the way back to the village.

Wahur could smell Kag's tracks, but he thought they had been left behind when Karg was fleeing from him. The fox had run backwards along the trampled road so that Wahur would think it was the old trail.

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!

Karg, Wahur

Clever
Fast
Angry
Careless


Trees, leaves
Hill, forest
Stream
Path

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




Your name _____

Build _____




Your name _____

Be attentive, your robot should be able to: _____



Your name _____

There also should be: _____



Your name _____

Think over: _____

VUK WAHUR CHASES KARG (T2)

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L3-4
P4



Suggested materials

- ArTeC blocks (at least the 112 pcs set) and ArTeC robotic set (3 Studuino motherboards, 3 Touch Sensors, 7 LEDs, 2 IR Photoreflectors, 5 DC motors, 2 servo motors)
- Black duct tape for line-tracking
- 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:

- Other subjects – natural sciences (D8)

Goals of the lesson:

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

Suggestions

Fleeing - Karg

- Discuss with the children how foxes move
- Build simple moving figures from ArTeC blocks and connecting elements

Chasing - Wahur

- Discuss what qualities a dog has

Movement of the stream

- Discuss how to show the movement of water, the sound of water, the surface of reflected water











Legs - running, speed of movement
- Karg, Wahur, stream's movement, rippling waves

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)

 Stepper motor	 Servomotor	 DC motor	 Sound sensor	 Light sensor
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 Accelerometer	 Infrared	 Touch sensor	 Electronic buzzer	 LED
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Build and program so that the robot _____

Use the Technical Corner for robot's helping materials!

Related topics in the Technical corner

- Programming servo motor
 - Moving head/tail to a given angle (3.a)
 - Repeated tail movements a given number of times (3.b)
- Testing and programming IR Photoreflector (7.a, 7.c, 7.e)
 - Line-tracking robot with 1 or 2 IR Photoreflectors(7.f, 7.g)
 - Moving forward to the black line (7.e)
- Testing and programming Sound Sensor (9.a)
 - Activating the robot with sound (9.b)
- Using LED (5.a)
 - Flashing (5.b)

Wahur and Karg are just figures, or follow a pre-programmed route

PROG1

Wahur and Karg follow the path by remote control

PROG2

Wahur and Karg each follow a path around the stream using line-tracking and then return. The stream ripples and gives light.

PROG3

Karg follows his way along the line. Wahur follows first with head down and tail held high. When he hears the splash, he starts running backwards with his head up and tail wagging

PROG4

VUK WAHUR CHASES KARG (T2)

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L3-4
P5

Ideas for robots on different programming levels

Wahur and Karg are just figures, or follow a pre-programmed route

PROG1

Wahur and Karg follow the path by remote control

PROG2

Wahur and Karg each follow a path around the stream using line-tracking and then return. The stream ripples and gives light.

PROG3

Karg follows his way along the line. Wahur follows first with head down and tail held high. When he hears the splash, he starts running backwards with his head up and tail wagging

PROG4



Wahur and Karg

P1 Simple moving figures

Construction:

- Can be made with movable parts, without robotics
- OR
- Karg and Wahur on a robot, built behind each other.
- The robot works with 2 DC motors: with pre-programmed movements.

P2 Remote-controlled chase

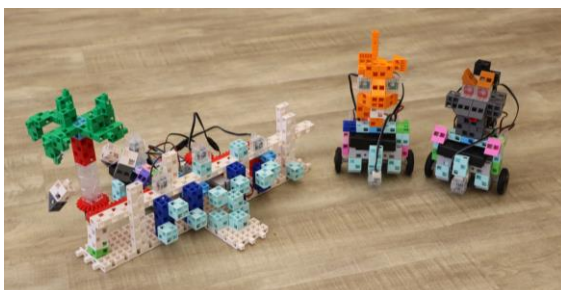
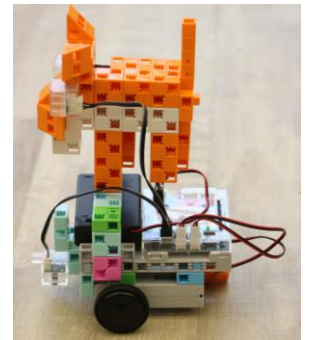
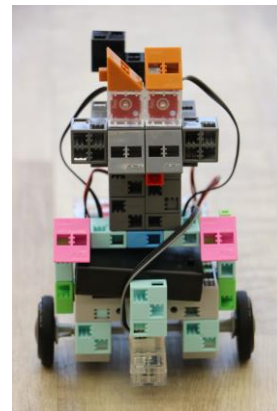
- Karg and Wahur on separate robots, both robots are equipped with 2 DC motors and a 4-Touch Sensor remote control
- Karg's eyes are green, Wahur's eyes are red (LEDs)
- The 4 Touch Sensors move the robot in 4 different directions
- The child who controls Karg chooses the route the robot will take, the child who controls Wahur has to follow it with their robot.

P3 Coordinated movement of figures

- **Karg** flees from Wahur along the stream by line tracking
- Starts at the press of a Touch Sensor and moves with line tracking
- 2 LEDs (green) continuously lit – eyes
- **Wahur** chases Karg along the stream by line tracking
- Starts at the press of a Touch Sensor and follows a different, longer line
- 2 LEDs (red) continuously lit - eyes

P4 Lifelike movements

- The two robots are built and operate as in P3
- Wahur's head and tail move with servo motors and is equipped with a sound sensor
- Karg follows a line as in P3
- Wahur first follows with head down and tail held high. When he hears a splash (Sound sensor), he starts running backwards with his head up and tail wagging



Stream

P1 Stream as prop

- Stream bank built with static parts, without robotics
- #### P2 Stream as prop
- Stream bank built with static parts, without robotics
- #### P3 Flowing stream with tree
- 1 Touch Sensor to trigger the movement of the stream.
 - 3 LEDs (blue) for water.
 - 1 DC motor to move the stream and tree using gears.
- #### P4 Flowing stream with tree
- As P3