

SULTAN OF ELEPHANTS AND GIMPY RED BEARDED ANT SLAVE ANTS WHO BELIEVE THEY ARE ELEPHANTS (T2)

S18
T2
D7
L1 P3

Focus on:

- Physics, robotics, engineering (D7)



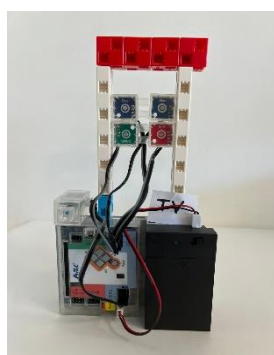
Task 1: What does the scene look like?

Students create elements of the scene.

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

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 – Natural Sciences
- Talent development



Task 2: What does a puppet with movable limbs look like?

Students create a animal 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!

SULTAN OF ELEPHANTS AND GIMPY RED BEARDED ANT SLAVE ANTS WHO BELIEVE THEY ARE ELEPHANTS (T₂)

S18
T₂
D7
L1 P4

Focus on:

- Physics, robotics, engineering (D7)



Task 3: How can a conflict be solved?

Students talk about roles in a group, convincing others, crushing the weak and freedom. They dramatize and act out the given situation.

Focus on

- Critical thinking
- Social skills
- Civics

You can use the Act it out! cards from the Idea Bazaar

Developmental fields:

In focus:

- Social competences
- Text comprehension

In addition:

- Attention concentration
- Life skills
- Talent development

How to manage output:

Take a video record of the dramatized situation!

Idea Bazaar – some ideas:

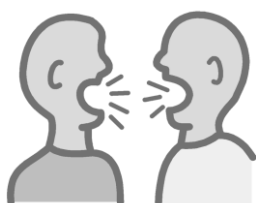
- Find out and dramatize a situation where you lead a group or you are led by others!
- Dramatize a situation when you take over others' mind!
- Imagine and dramatize a situation when freedom is restricted!

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

Cut out the situation cards!

Choose the focus that you want the children to deal with! Give them the appropriate situation card!

Help them to build the situation if needed!




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Co-funded by the
Erasmus+ Programme
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**SULTAN OF ELEPHANTS
AND GIMPY RED BEARDED
ANT**

S18
T3-4
L1




Some ideas- conflict solving

Act it out!

Do you feel like a leader in a group?
 What roles can there be in the group other than being a leader?
 Which of these roles do you feel close to?

Imagine and dramatize examples of leadership!

Act it out!

Would you like to take over people's minds?
 If you could convince all humanity of one idea, what would it be?
 How do people who do not believe in this idea live?

Imagine and dramatize through sample ideas!

Act it out!

Is it important to be weak but big, or is it important to be strong but small?
 Should the strong crush the weak?
 How right is it to restrict freedom?

Discuss and compare the two situations.

SULTAN OF ELEPHANTS AND GIMPY RED BEARDED ANT SLAVE ANTS WHO BELIEVE THEY ARE ELEPHANTS (T2)

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L2 P2



Sultan of Elephant, curious about the ants' teamwork, decided to use them for his own plans. After negotiations, the ants unwillingly agreed to Sultan of Elephant's demands. The Red-Bearded Lame Ant disappeared, this made Sultan of Elephant worried. Determined to control the ants, Sultan of Elephant and Ulukepez developed a plan to make the ants think like elephants. So they would accept Sultan of Elephant as their Sultan, too.

They made the ants forget their language, work for elephants, and build a palace and throne from blue diamonds. To speed up the process, they brought other ant countries under Sultan of Elephant's command. All ants started behaving like elephants. But ants were working very hard. They were like as a big army.

The ants, now thinking they were elephants, faced challenges. They overate like elephants, rubbed their backs on trees, and enjoyed it. Sultan of Elephant worried about losing the ants and tried to stop their behavior. To distract them, he gave them new tasks, played brass instruments, and opened schools to make them forget their ant identity.

Despite winter approaching, the ants were busy fulfilling Sultan of Elephant's demands, leaving them half-hungry and half-full. They enjoyed modern things like radios and TVs. Sultan of Elephant was pleased that the ants had forgotten who they were, but their peculiar behavior continued.

Suggestions:

Not accepting slavery

Based on the story, tell the students that they were captured by someone powerful.

Would you accept to be a slave or would you run away like an ant with a red beard?

Ask students to take on the role of elephant and ant and imagine being a slave or leader.

Possible tasks for students:

-What would you do if you were Ulukepez or the Sultan of Elephants and the ants asked you to pity them and asked for help?

-From where?

-What do you think the slave ants feel?

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

Focus on:

- Physics, robotics, engineering (D7)

Goals of the lesson:

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

Characters	Features	Interactions
Sultan of Elephants	Walks, talks, falls into the pit	3 characters talk to each other and act according to the story.
Red bearded ant	Walks, talks	
Ulukepez	Walks, fly	3 characters talk to each other and act according to the story.

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 building

Students can use more pieces of each parts of the Character card if needed!

Sultan of Elephants
Red bearded ant
Ulukepez

Walk
Talk
Falls into the pit
Fly

Ulukepez and the Sultan of Elephant are making plans together. All ingredients and filler effects.

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: _____

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Suggested materials

- ArTeC Blocks (at least the 112 pcs set) and ArTeC robotics set (at least Studuino motherboard, 2 DC motors, wheels, 2,4 or 6 servo motors, 2 or 4 Touch sensors), gears, drive rails, base plates
- Mindmap or Chart draft template
- Storyline template
- Pencil

Focus on:

- Physics, robotics, engineering (D7)

Goals of the lesson:

- fine motor skills,
- problem solving,
- decision making



Suggestions

Palace and Blue Diamond Throne

- Consider the mechanism by which you will construct the palace and the throne
- Check out how you can move using ArTeC Blocks in the palace and on the blue throne.

Elephant School

- Discuss how imitation can be demonstrated with robots
- Think about what words and phrases might entice the ants.

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).
- Fill in the robot cards in the target language!
- Not all columns of the table need to be filled in, only those that are relevant to the robot's particular operation.
- Based on each row of the table, use grammatically correct sentences to describe the robot's operation in the target language.

Arm
Mouth
Make noise
Show the bread's division

The name of my robot: _____

The parts I need for my robot:

Buttons	Servomotors	DC motor	Sound sensor	Light sensor
Touch sensor	Ultrasonic sensor	Push button	Temperature sensor	IR sensor

Choose the parts you need! Check off what you use!

Blue: action
Green: variable
Find robotics support materials in the Technical Corner!

This is how I build and program my robot:

What do I use?	What is it doing?	What? (robot)	What? (robot)	To what? How long? How many times?	What does it look like?

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
 - Running the motor with different settings (2.a, b, c, d, f)
- 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 servo motor (3.c)
 - Synchronous movement of several servo motors (3.d)
- Testing and programming Touch sensor (4.a, 4.b, 4.c)
 - Creating remote control for the robot (4.d)
- Using variables – Counting (11.c)

Paravan puppet theatre with 3 different solutions.

PROG1

A spectacular display of the ascending throne and the palace under construction. A simple display of imitation.

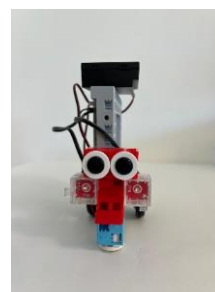
PROG2

Interaction between a static robot and a 4-button remote control robot.

PROG3

Introduction to the concept of variable, with interesting servo motor structures.

PROG4



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Ideas for robots on different programming levels

Paravan puppet
theatre with 3
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PROG4



Assimilation of Ants

P1 Mechanical and motorised puppet theatre

- The blue throne and the palace under construction are mounted on 2 vertical DC motors. 2 LEDs flash continuously on the screen while the motors move the small figures. The program starts automatically.
- The white beams help you to create the scene, the imitation. The elephant and the little ants can be moved separately.
- The white beams are used to puppeteer the imitation. The figures can be moved together.

P2 Servo and DC motorised puppet theatre solutions

- The throne: mounted on 1 servo motor and in its default position, it is laid down flush with the screen. 1 LED is mounted.
 - The palace: 1 servo motor is mounted on the gate and the LED of the gate under construction.
 - There are 2 touch sensors on the puppet theatre. Pressing one of them will make the throne rise, the palace gate will also be built, i.e. it will also rise. The LEDs on them turn on. Pressing the other button causes the LEDs to go out, the throne and the palace gate reset.
- The 2 DC motors are mounted horizontally, with the elephant on one and the little ants on the other. There are 2 touch sensors, one for the right and one for the left, to symbolize imitation.

P3 Drive rail solutions

- Ulukepez, the bird: 4 touch sensors, 2 figures that can be moved on 2 DC motors. The 4 touch sensors can be moved forward-backward-right-left, so that it can be directed in front of the IR photoreflexor mounted on the puppet theatre.
 - The throne and the palace: the two figures are mounted on 1 servo motor and can be moved up and down simultaneously on the gears on both sides and are equipped with 1 - 1 LED. When the bird is placed in front of the IR photoreflexor, the puppet theatre program starts and the two figures are lifted up, the LEDs turn on and start flashing. When the robot moves away from the IR photoreflexor, the LEDs turn off and the throne and the palace on the drive rail return to their original positions.
- The Sultan of Elephants randomly turns right or left with 1 servo motor.
 - The little ant is on 1 servo motor and turns delayed towards the Sultan of Elephants. This movement can be triggered by the pupils using 1 IR photoreflexor and 1 white building block. When the little ant turns in the right direction the green LED flashes, when it turns in the wrong direction the red LED flashes.

P4 Servo motor special solutions

- The throne and the palace: 2 servo motors with 1 - 1 LED are mounted and can be moved up and down separately. 4 touch sensors control the two motors to control the whole structure, 2 control the throne, 2 control the palace. In both cases, one moves the figures up and the other down on the rack by stepping, introducing the concept of variable when programming.
- The palace and the blue throne are built with a special puzzle-like construction on 6 servo motors. The program starts automatically when the power is turned on.

