

THE ADVENTURES OF DON QUIXOTE FIGHT WITH THE WINDMILLS (T1)

**S6
 T1
 D10
 L1 P3**

Focus on:
 • Creativity (D10)



Task1: What does the characters and the scenes look like?

Students create elements of the landscape for Don Quixote's travels around Spain.

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! (I1, I4)

Developmental fields:

In focus:

- Fine motor skills
- Spatial orientation
- Creativity

In addition:

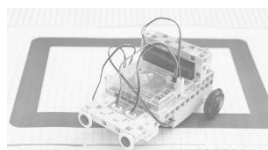
- Attention concentration
- Subject concentration – Natural Sciences
- Talent development

Task2: How did Quixote and Sancho travel? How far did they move and what means of transport were used?

Students create a plan for travel and horse, donkey figures.

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Idea Bazaar – some ideas:

- Building animals out of ArTeC Blocks
- Programming the animals to move and carry humans around, think how to place the characters on top of animals to be able to travel
- Creating computer graphics, animation
- Drawing

For details of the different solutions, see the Idea sheets! (I1, I2, I3)

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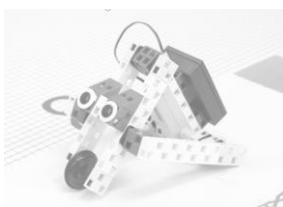
- Social competences
- Graphomotor skills
- Creativity

In addition:

- Life skills
- Subject concentration – Citizenship
- Talent development

How to manage output:

Store the objects in a wardrobe, to protect them from falls. Attach a label with the name of the group!



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Task 3: Why do people laugh at Don Quixote?

Students discuss the reasons for Don Quixote's behaviour and society's reaction to it.

Every solution is good!

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



How to manage output:

Take a video record of the dramatized situation!

Idea Bazaar – some ideas:

- Find out and dramatize a situation where your friend behaves in a strange way and how you would react.
- Imagine how other people would react and what you would do to help your friend

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

Cut out the situation cards! (I5)

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!

Developmental fields:

In focus:

- Social competences
- Critical thinking
- Social skills
- Civics
- Text comprehension

In addition:

- Attention
- concentration
- Life skills
- Talent development

Task3: Build a windmill or a giant!

Students create windmills or giants. They can build small models or large structures. Have them be creative, use big variety of materials.

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Idea Bazaar – some ideas:

- Building the structure out of ArTeC Blocks
- Using recycled materials
- Making costumes
- Drawing
- Creating computer graphics
- Making origami

For details of the different solutions, see the Idea sheets! (I6)

Developmental fields:

In focus:

- Fine motor skills
- Creativity
- Spatial orientation

In addition:

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

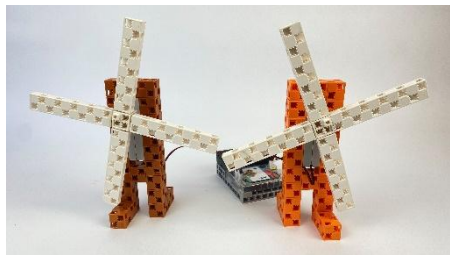
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THE ADVENTURES OF DON QUIXOTE

FIGHT WITH THE WINDMILLS (T1)

S6
T1
D10
L2 P3



Focus on:

- Creativity (D10)

Goals of the lesson:

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

The knight sees some windmills and thinks they are giants. When he rides to fight with them, he is knocked off his horse. Sancho tells him they are only windmills, but Don Quixote does not believe him. He is sure a magician changed windmills into the giants to hurt him.

Main features and interactions of the characters

Character	Features	Interactions
Don Quixote	Walks rides a horse talks	The have conversations during the way, Sancho tries to understand Quixote asking questions and doubting actions
Sancho Panza	Walks rides a donkey talks	
People they meet	walk talk	Mock Quixote's behaviour

Suggestions:

- Discuss how human movements are made
- Make some movements together; children should percept the phases of their own movements
- Talk about imagination, dreams.
- Collect informations about how windmills work
- Collect information about mills in different ages
- Search in books or on the internet about life and values of knights
- Search in books or on the internet about life in the mediavel age
- Build a simple figures with movable legs, arms or mouth from ArTeC Blocks

Suggested materials

- ArTeC Blocks (at least as the 112 pcs set)
- Map of Spain
- Storyline template
- pencil

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!

Sancho Panza
Don Quixote
Random observer
(society member)

Walk
Ride a horse
Ride a donkey
Attack windmills
Express opinions
Criticize
Ask questions

Windmills
Horse
Donkey
Sword and shield

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

	<u>Your name</u>
Build	
	<u>Your name</u>
Be attentive, your robot should be able to:	
	<u>Your name</u>
There also should be:	
	<u>Your name</u>
Think over:	

PROG4

THE ADVENTURES OF DON QUIXOTE FIGHT WITH THE WINDMILLS (T1)

S6
T1
D10
L3-4
P5

Ideas for robots on different programming levels

Don Quixote and the windmills

a) directly driven by a DC motor
b) where programmed operators. Sancho Panza is an axial figure.

PROG1

Don Quixote and the windmills move as long as their buttons are pressed. Sancho Panza's arm moves up and down with a servo motor.

PROG2

Don Quixote is already aware of his surroundings, the windmills. Both Sancho Panza's arm and his donkey are driven by a servo motor.

PROG3

Each of the three robots is fitted with more and more sensors. The robots are becoming more and more complex.

PROG4



1- Fight with the windmills

P1 Puppeteering

- a.) Don Quixote directly powered by DC motor
- The windmills' blades and Sancho Panza can be moved by axles.
- b.) Don Quixote and 2 windmills are mounted on a robot. The program starts automatically when the robot is switched on.
- Don Quixote moves forward for 3 seconds and stops.
 - The programmed windmills rotate until they are switched off.
 - The DC motor of the third windmill is directly driven. Sancho Panza is mechanic figure here too.

P2 Scene controlled by pressing and holding the Touch sensor

- Build Don Quixote and the windmills as in P1.b.
- Don Quixote starts by pressing the Touch sensor and goes until the Touch sensor is pressed.
- The blades of the two programmed windmills also rotate as long as the Touch sensor on them is pressed.
- The built-in DC motor of the other windmill is still powered directly from the battery holder.
- Sancho Panza is a static robot with 1 servo motor, 1 Buzzer and 1 Touch sensor.
- His program will start on a push button, raises his arm for 1 second, then lower it and Buzzer will sound.

P3 Servo motor movements

- Don Quixote and the construction of windmills as in P2.
- Don Quixote's arm is fitted with a servo motor.
- Don Quixote moves forward, while the servo motor raises his sword. An attached IR photoreflexor detects when the robot comes to a stop at the windmills.
- The speed of the windmills varies randomly and they also have different speeds compared to each other.
- The 1 servo motor mounted on Sancho Panza's arm and the 1 servo motor mounted on the neck of the donkey is activated by the 1 push button on the motor. He raises his arm for 1 second and then lowers it while the donkey's head moves up and down, while the Buzzer sounds on it



P4 Console-driven protagonist

- Don Quixote and the construction of windmills as in P3.
- Don Quixote is controlled by a remote control with 4 Touch sensors to move forward-back-right-left and the 5th Touch sensors to raise and lower his sword.
- The console is used to guide the robot in front of an IR Photoreflexor mounted on the windmills.
- Each programmed windmill is equipped with 1-1 IR Photoreflexor.
- When Don Quixote arrives in front of the IR photoreflexor on the right, the wheels of the mills start turning to the right, at different speeds. If the IR photoreflexor on the left starts the windmills spinning, the blades will start spinning to the left, also at different speeds.
- Sancho Panza works in the same way as in P3.

THE ADVENTURES OF DON QUIXOTE

FIGHT WITH THE WINDMILLS (T1)

S6
T1
D12
L1 P3

Focus on:

- Language communication (D12)



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In focus:

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In addition:

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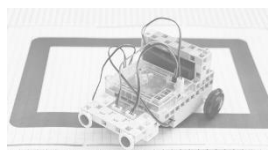
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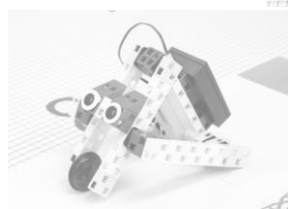
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T1
D12
L1 P4

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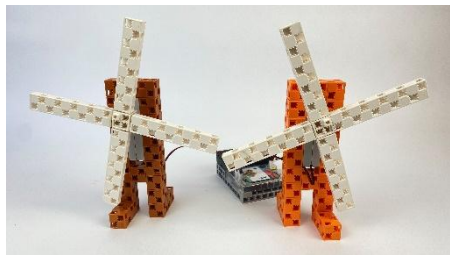
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Think over:	_____

THE ADVENTURES OF DON QUIXOTE FIGHT WITH THE WINDMILLS (T1)

S6
T1
D12
L3-4
P4



Suggested materials

- ArTeC Blocks (at least the 112 pcs set) and ArTeC robotics set (1 or 2 Studuino motherboards, 4 DC motors, 3 IR Photoreflectors, 6 Touch sensors, 1 Buzzer)
- Mindmap or Chart draft, Storyline
- Character cards and Robotic task card template
- Pencil

Focus on:

- Language communication (D12)

Goals of the lesson:

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

Suggestions

- Collect ideas about how a windmill moves.
- Collect ideas about how to represent the fight.
- Collect ideas about how to imitate Don Quixote's movements.
- Build simple figures from ArTeC Blocks.

How to fill in the Robotic card?

- Based on the character card, the developmental aspect and the programming level, choose the robot activity and the complexity of the program to match the child's abilities.
- Additional robot cards can be filled in if necessary (e.g. for clarification or differentiation).
- Not all the table's columns need to be filled in, only those relevant to the robot's particular function.
- Based on each row of the table, use grammatically correct sentences to describe the robot's operation in the target language.

Arm
Leg
Sword

The name of my robot: _____

The parts I need for my robot:

Buttons	Microcontroller	DC motor	IR sensor	Light sensor
Photoreflector	Touch sensor	Electronic buzzer	LED	

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

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

This is how I build and program my robot:

When do I start?	When is it done?	What? (Sensors)	What? (Motors)	To what? How long? How many times?	When does it stop?

This is how my robot will work: _____

Write in complete sentences using the table above!

Related topics in the Technical corner

- Programming DC motor
 - Setting power, direction (2.a, 2.b)
 - Random movements (2.f)
- Using Touch sensors (4.a, 4.b)
 - Remote control made of 4 Touch sensors (4.d)
- Buzzer (6.a, 6.b)
- 7. IR Photoreflector
 - 7.a) Testing IR photoreflector
 - 7.b) Detecting obstacles
- Using random numbers (10.a)

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PROG2

Don Quixote is already aware of his surroundings, the windmills. Both Sancho Panza's arm and his donkey are driven by a servo motor.

PROG3

Each of the three robots is fitted with more and more sensors. The robots are becoming more and more complex.

PROG4

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