



## TITLE: Live interactive presentation with NAO

### LEARNING SCENARIO

<i>School: Mangualde School Group</i>		<i>Duration (minutes): 240</i>
<i>Teacher:</i>	<b>Cristina Ligeiro, Manuel Figueiredo, Paula Loureiro, Renato Castro</b>	<i>Students age: 14</i>

#### Essential Question:

How to make the team presentation with NAO?

#### Topics:

- Programming robots
- Computational thinking
- Blocks programming language

#### Aims:

Using Choregraphe concepts to do the proposed tasks  
 Create a sequence of movements and make a conversation with NAO  
 Programming interactive behaviors

#### Outcomes:

Programming for dynamic conversation  
 Team presentation guide

#### Work forms:

- individual work
- work in pairs

#### Methods:

- Coding
- Interactive exercise /simulation on the computer
- Discussion
- Testing

### ARTICULATION

Course of action (duration, minutes)

### INTRODUCTION



In a large group, students work on a shared document where they write the presentation guide to be interpreted by them and NAO. Then they should do the programming of the robot. After checking the errors and making corrections, the students rehearse the representation. Finally, they think of an extension activity that they can present as a final challenge to their colleagues, at the time of presentation.

### MAIN PART

#### Topics for discussion

- Communication skills
- Computational Thinking
- The Choregraphe code

#### Scenarios for discussion

- Students write a team interpretation presentation to be performed with the student and NAO robot.
- Students develop code according to the written narrative.
- Students check if the code runs.
- Students practice scenes and correct mistakes (they may make a video to have sure that everything is ok).
- Students and teachers criticize and evaluate the work and products and make necessary changes.
- Students think of a suggestion of activity to propose to the students during the presentation: NAO asking the question "how fast do I move? How many steps do I take per meter? How many meters do I walk per minute? How should students proceed to estimate these values?" Or "if NAO was programmed to serve us a coffee how long would it take to walk a meter?" Or a mor open quuestion..." If NAO went to get a coffee for teacher Ivana, would he take it hot in her hands?"

### CONCLUSION

As in the other sessions, students are expected to be enthusiastically involved in the activities, in collaborative and dynamic work, while using their critical and creative senses.

#### Methods

*interactive exercise /simulation on the computer*

#### Work forms

*individual work  
group work*

#### Material

- Computers
- Choregraphe. Exe
- NAO robot
- Video camera

#### Literature



- NAO Software 1.14.5 documentation; [http://doc.aldebaran.com/1-14/software/choregraphe/starting\\_discovery.html](http://doc.aldebaran.com/1-14/software/choregraphe/starting_discovery.html)

#### PERSONAL OBSERVATIONS, COMMENTS AND NOTES

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With the activities proposed in these lesson plans, students learned the basics of programming NAO with Choregraphe, making use of the interaction between different functions. The NAO recognizes voices, identifies objects and answers questions.

The work was developed with the involvement of the students. They all demonstrated satisfaction and engagement in the configuration and execution activities.

With these activities we confirm that students have developed and/or applied the necessary and urgent competences of the 21st century - collaborative work, communication, research, critical and creative thinking, as well as computational thinking.

Students extend this activity by developing a video tutorial showing how to program NAO.