



EARLY Teaching Scenario

Topic:

- ❖ **Programming and geography; Parrot Mambo Fly drone and Tynker app**
- ❖ **Travel around the continents**

Learning outcome: The students...

- learn how to program the Parrot Mini Drone in the Tynker app
- learn to let the drone take off, travel around and land in a certain place
- practice to estimate distance, time and speed
- learn in the names and locations of the continent
- practice collaboration
- practice in assessing their own learning

Applying the 7 key competences



Skills pupils develop during the scenario: connect to curriculum →

The National Curriculum Guide for Compulsory School, IT, states that by the end of class 7, students should be able to...

- use electronic study material in various forms in connection with work technology, work methods and other learning
- show independence in guided and collaborative work
- use different technological equipment in an advantageous and varied way
- use new electronic and interactive study material in a variety of ways

The Social Sciences section states that by the end of Grade 7, students should be able to use maps and graphs to gather information, and map reading is also trained with this project, which works with continental names.

The course components that are trained in the project are as follows:

- technology awareness
- ability to program
- go through the work process and follow the instructions
- degrees and time
- map literacy
- Problem searching and solving
- Collaboration
- self assessment

Target group: beginners level, pupils in primary school

Age of students: Ca 9-12 years

Number of pupils: 1-2 students, per drone, the number of groups depends on how many drones exist.

Duration (estimated time/number of lessons): 2X60 min

Prerequisites (necessary materials and online resources):

- Fully charged iPad with the Tynker app
- Parrot Mambo mini drone with a fully charged battery
- Printed images of continents and countries
- Small cards with continental names (to attach to the drone)

Introduction to the scenario *(incl. possible applications, alternatives and risks):*

It is ideal to work in pairs; 2 students with each drone. The following video shows the first steps to connecting the drone to the iPad and the Tynker app, also the simplest commands to control the drone: https://youtu.be/B_7JYvluleU

The starting point for all drones is your homeland, where they get their commands, where to fly next.

Take care that the battery life is not long, it is good to have extra batteries for the drones.

Before the program begins (preparatory work for teacher):

Teachers must be familiar with the Tynker application and the Parrot Mini drone and watch the video in advance..

Print a map of all continents (each one separately) along with your homeland and spread around the floor - have a good space between continents. It is good to plastic the cards and stick them to the floor

Main part of the scenario (60 min lesson):

The teacher spreads images of continents around the floor at regular intervals and presents them to students in the beginning of the lesson. Here is an opportunity to talk about what the continents are called, their size and more that he wants to teach them. You also need to print out a map of the person's home country from where the drones start the game.

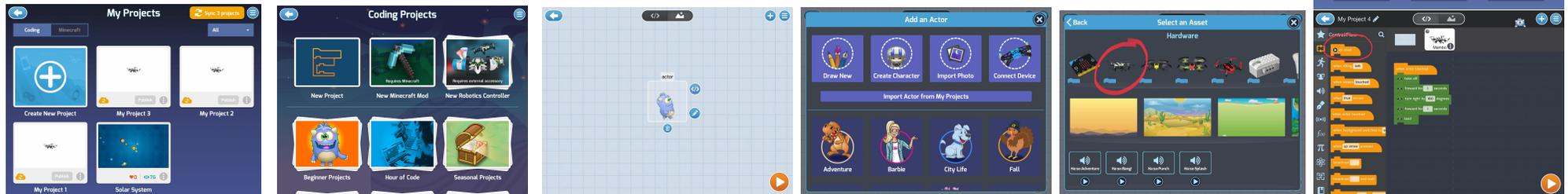
Students receive a card with a name of a continent (draw it from a pile of cards), attach it to the drone in their home country, then program the drone to fly with the card to the relevant continent, leave there and then fly back to their home country. They draw a new card and so on...

After explaining the project to the students, the teacher shows the students the video https://youtu.be/B_7JYvluleU

Next, draw a card with a name on the continent, attach it to the drone and place it on the homeland.

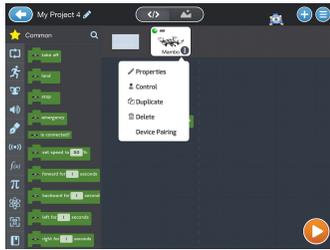
After that, students get the iPad, open the Tynker app and follow the instructions to connect the drone to the app:

In the Tynker app, students select "Projects", "Create New Project" and "New Project". Then you delete the person on screen, "actor" and pick the plus in the top right corner, "Connect Device" and then the drone.

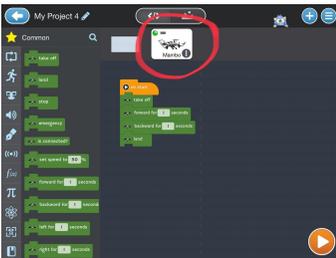


Then they select the corner bracket and then the workbench opens so they can program the drone. Once here, the code is on the screen and students need to change it, replace the block *when the actor touched* and put *on start* instead.

Once here, students need to look carefully at the continents on the floor and decide how they should program the drone to take off from their homeland and land on the continent they drew. The main commands they need to use in this task are classified under *Common*, which are at the top of the list.



Once students have programmed the path to the planet, they turn on the drone and wait for the green light to turn on in the "eyes" of the drone. If this does not happen, the battery must be charged. Next, select "Device Pairing" and be sure to choose the right drone, if more than one is nearby. When the green dot flashes on the image of the drone in the app, the devices are connected and you can press the start button and run the app.



If the drone does not land on the selected continent, it must be returned to its home country and changed its programming until the mission is accomplished.

Students are likely to need some effort to land on the selected continent, but when it does, they will take the card off the drone, put it on the continent and leave it there, fly back home and get a new continent to go to.

Next lesson (1X60 minutes):

After having been introduced to the project recently, students can now go straight to work, once the pictures of the continents have been arranged on the floor.

- Pull a card with a continent
- Open the Tynker app
- "Projects" - "Create New Project" - "New Project"
- Then you delete the character on the screen, "actor" and pick the plus in the top right corner
- "Connect Device" then the image of the drone
- Program the drone to fly from the homeland to the continent on your card and repeat the game until all the continents are there.

Students take turns, those who work together exchange hold the ipad and program. The teams take turns running their programs and make an attempt to land on the continent. Be sure to have just one drone in the air at a time to avoid collisions ...

If the teacher wants to have some kind of a competition as a part of this programming, they can print out the labels attached and use as a reward for the teams. They receive it when they conquer the continent, and the team which gets most continents is the winner!

When the game is over, it is good to have students **evaluate** the lesson. For example:

- What did you learn today?
- What was difficult?
- What was easy?
- How can we use the drone in more learning?

Summary (knowledge, skills, understanding):

1. Students **understand**:

- how the Parrot drone is programmed

2. Students **can**:

- Programme the drone and connect it to the iPad
- Let the drone fly a certain distance and land at a certain point
- follow programming instructions
- work in the Tynker app
- Have communication / collaboration with other students
- Evaluate their work

3. Students **learn**:

- to program drones
- to work in the Tynker app
- to revise and adjust their programming
- how far the drone goes in one second
- to set the drone's direction in degrees
- the basic knowledge and skills needed in programming
- the name of the continents
- to work with others
- to rejoice and take victory / loss

The continents - for the drones!

ASIA

AFRIKA

EUROPA

ANTARCTICA

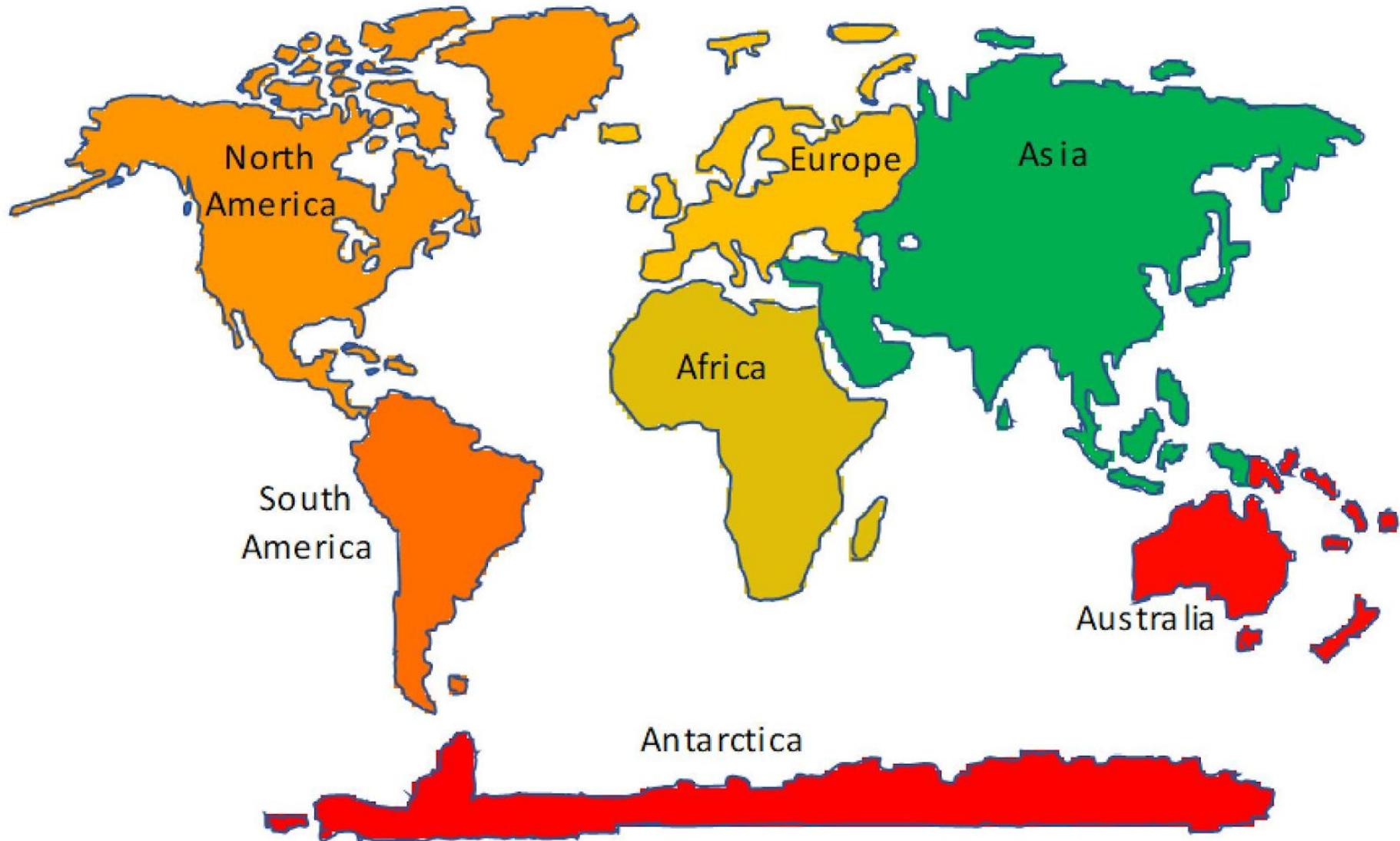
AUSTRALIA

N-AMERICA

S-AMERICA

NOTE! This program is easy to implement for projects other than the continents, such as the planets!

WORLD CONTINENTS – PRINTOUT FOR TEACHING SCENARIO



The rewards:

