TangIn

Tangible Programming & Inclusion

TangIn Toolbox
EU Countries

8-12+ years old

EU Countries Characteristics	Maps
Citizenship	Itineraries
Length and angles	Probotic

www.tangin.eu

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Summary

Importance of collaboration between EU countries, their location on the map and their flags. Angles measurement and distances calculation using protractors and rulers.

Expected duration: **50 min** (the lesson plan duration is flexible, and teachers can adapt them accordingly to their needs and class duration).

Learning Outcomes

At the end of the session, students are expected to:

- Recognize the EU countries;

- Identify the flags and capitals of the EU countries;

- Locate on the map some EU countries;

- Recognize the importance of cooperation between countries;

- Program the robot adequately, optimizing the itineraries;

- Value STEM areas;

- Develop transversal competencies such as problem-solving, communication and reasoning;

- Develop group work skills, namely, to respect and favor the inclusion of all elements, regardless of gender, culture, etc.

Links With Curriculum Topics

Covered Curriculum Topics		
Subject		**Topics**
Engineering	**Mathematics**	Numbers and operations • Rational numbers (optional) Geometry and Measure • Orientation and Localization – Maps and itineraries • Length and angle measurement or estimation
	Science	EU Countries • Flags, capitals and map location • Citizenship
	Technology	Programming • Concepts of programming • Programs – Results, errors, and troubleshooting • Loop function Robotics • Programming objects to solve challenges

Tangible Programming & Inclusion

Notes for Teachers

The teacher should prepare, in advance, all the materials needed and the classroom according to the activities to be developed.

The teams should be as heterogeneous as possible to foster the integration of all students.

It's important that clear rules are established in terms of group work. This way, it avoids the most active children assuming the lead and the quitter ones only observing.

The teacher must circulate through the various groups to support the activities and the dynamics of each one. In the end, it should promote a collective discussion of the main issues focused and the constraints and difficulties experienced.

Lesson Plan

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Intro	15'	Class	"Today's mission is to teach MI-GO what are the countries that compose the European Union (EU), their location, capitals, and flags." Address the class and discuss with them what the EU is, the concept and importance of citizenship and how different countries and persons can cooperate to achieve common goals. The teacher explains that MI-GO doesn't know the EU countries, their capitals or flags. He also doesn't know the map of Europe.	
Prep	5'	Group	The teacher organizes the class into groups. Each group will have a robot kit, dots, a map and set of cards of EU countries. Use a map of Europe with the countries name written on the map and place a transparent scenario on top of it (to be able to reuse the map).	

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			The front of the cards has the country's flag and the back has the name of the country with some information, like the capital. Display the cards next to the map with the flag facing up.	
Play		Group	Each group will be divided into 2 teams (Team A and Team B) **Dynamic**: The team A pick one card at a time, find the country and mark it in the map (doesn't have to be on the capital). Repeat the process for other countries. With the robot on the top left corner, Team A programs the robot to go to as many EU countries as possible (going to a country means passing on the square where the country dot is). Is this example, Team A would go through Ireland, Portugal, Spain, Italy, Greece, Bulgaria, Romania, Slovakia, Lithuania, Latvia, Estonia, and Finland) Team A then must assign a flag to each country. If they are correct, they keep the flag. If they miss, they put the flag back on the table. They confirm if they are correct looking at the back of the cards. The other team must not see the names of the countries on the cards.	

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			Alternative Rules: Instead of assuming that the BOT went to the country just by passing on the square where the dot is, it must actually cross the circle. For this, use a marker on BOT and make relatively big circles on each country. Students should use protractors and rulers to determine the path of the BOT. They must also use angle and decimal blocks. After each turn, teams change roles. The challenge finishes when all the flags are taken. The team with most flags win.	
Discussion	10'	Class	In the end, the teacher presents some flags and asks the students to identify their countries, capitals and main characteristics and to locate on the map (or vice versa).	

Resources List & Support Material

Per each group:

- A robot Kit with drawing capabilities;

- Markers for each group (easy to erase/clean), for the dots;

- Alcohol for cleaning the scenarios (for teacher use only);

- Transparent scenario with a 6x6 grid;

- A map of Europe that fits the 6x6 transparent scenario (see Annex with an example)

- Cards with images of the flags and characteristics of several countries (Annex);

- Protractor, ruler (optional).

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Austria

Capital: Vienna
Population: 8,504,850
Total area: 83,858 km^2

Belgium

Capital: Brussels
Population: 11,132,269
Total area: 32,545 km^2

Bulgaria

Capital: Sofia
Population: 7,282,041
Total area: 110,912 km^2

Croatia

Capital: Zagreb
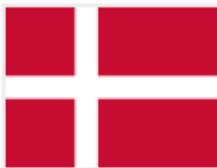Population: 4,290,612
Total area: 56,538 km^2

Cyprus

Capital: Nicosia
Population: 865,878
Total area: 9,251 km^2

The Czech Republic

Capital: Prague
Population: 10,513,800
Total area: 78,866 km^2

Denmark

Capital: Copenhagen
Population: 5,627,235
Total area: 43,094 km^2

Estonia

Capital: Tallinn
Population: 1,311,870
Total area: 45,100 km^2

Finland

Capital: Helsinki
Population: 5,452,821
Total area: 338,145 km^2

France

Capital: Paris
Population: 65,844,000
Total area: 551,500 km^2

Germany

Capital: Berlin
Population: 80,619,000
Total area: 357,022 km^2

Greece

Capital: Athens
Population: 10,815,197
Total area: 131,957 km^2

Hungary

Capital: Budapest
Population: 9,906,000
Total area: 93,032 km^2

Ireland

Capital: Dublin
Population: 4,593,100
Total area: 70,273 km^2

Italy

Capital: Rome
Population: 59,943,933
Total area: 301,318 km^2

Latvia

Capital: Riga
Population: 2,003,900
Total area: 64,600 km^2

Lithuania

Capital: Vilnius
Population: 2,941,953
Total area: 65,300 km^2

Luxembourg

Capital: Luxembourg City
Population: 537,000
Total area: 2,586 km^2

Malta

Capital: Valletta
Population: 416,055
Total area: 316 km^2

The Netherlands

Capital: Amsterdam
Population: 16,842,200
Total area: 41,528 km^2

Poland

Capital: Warsaw
Population: 38,502,396
Total area: 312,685 km^2

Portugal

Capital: Lisbon
Population: 10,487,289
Total area: 91,982 km^2

Romania

Capital: Bucharest
Population: 20,121,641
Total area: 238,391 km^2

Slovakia

Capital: Bratislava
Population: 5,415,949
Total area: 49,033 km^2

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Slovenia

Capital: Ljubljana
Population: 2,061,963
Total area: 20,256 km^2

Spain

Capital: Madrid
Population: 46,609,700
Total area: 505,992 km^2

Sweden

Capital: Stockholm
Population: 9,651,531
Total area: 449,964 km^2

The United Kingdom

Capital: London
Population: 63,705,000
Total area: 242,900 km^2

European Union

Source: http://flagpedia.net/organization/eu

More info about each country might be found at https://europa.eu/european-union/about-eu/countries_en

Source: