

**LESSON OF MATHEMATICS with GOOGLE MAPS and GOOGLE FLIGHTS**

**Project: GOOGLE OFFERS APPLICATIONS FOR LESSONS**

**Project Number: 2018-1-PL01-KA229-050762\_6**

**SOSE TRNAVA, SLOVAKIA**

**Maths Lesson Plan** by Peter Baranik

**Subject: Computing distance, speed and time with Google Maps**

Number of students: 15

Objectives:

1. Use innovative learning environment for students and teachers based on Google apps.
2. Introduce your students to a new way of learning with virtual reality (VR).
3. Increase students’ motivation to learn science and English language.
4. Revise English vocabulary

Form: groupwork

Equipment and resources: mobile phones, selfie sticks, wi-fi connection, projector, screen recorder, learningapps, Quizlet

**Overview**

In this lesson, students can have the chance to:

* use Google Maps to find different places, compute their distances and compare it to the Maps distances
* use Google flights to find flights, compute its average speeds and compare it in both directions

find interesting places and see them using Cardboard

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| --- | --- | --- | --- | --- | --- |
| Step | Activity | Objective | Classorganisation | Equipment/apps | Time |
| 1. | Teacher greets students and visitors and they sit down. |  | Frontal work |  | 2’ |
| 2.  | Teacher explains the problem and usable sourcesLet’s see how it works | Warm-upIntroducing the subject | Frontal work | Interactive board, projector | 10’ |
| 3. | Students are divided into groups |  |  |  | 3’ |
| 4. | Give students an activity to complete concurrently with the expedition (each group receives a set of questions to find answers) | Main part of the lesson: | Groupwork | Google MapsGoogle Flights | 17’ |
| 6. | Group leaders present their answers to the class and the teacher. | Developing Speaking Skills | Frontal work | Interactive board, projector | 10’ |
| 7 | Groups using Cardboards individually. | Summary | Frontal work | Interactive board, projector | 6’ |
| 8. | Summary | Evaluation | Individual work |  | 2’ |

Used material:

Pupils will be divided into 4 groups and each will have 2 tasks in combination 1-2,1-3,2-4,3-4.

1. On the map, locate Trnava, General Golian 48.
	1. Find distances to this place from school by car, by public transport and on foot and enter them in the spreadsheet. At each write down the estimated transfer time and calculate the average transfer rate.
	2. Then replace and repeat locations. Compare the data and explain the differences.

|  |  |  |  |
| --- | --- | --- | --- |
|  | car | bus | walk |
| Distance (km) |  |  |  |
| Time (min) |  |  |  |
| Average speed (km/h) |  |  |  |

1. Find Dubai Airport on the map and describe its GPS data.
	1. Use the Distance Measurement Tool to measure the distance to Vienna Airport. Write down the distance and coordinates of Vienna Airport.
	2. Find the online distance calculation tool using GPS coordinates, use it, and compare the result with the point a.
	3. On Google flights, find the nearest flight Vienna Dubai, and vice versa. Find out the lengths of flights and compare them. Calculate average flight speeds and evaluate their differences.

|  |  |  |  |
| --- | --- | --- | --- |
| GPS Dubai |  | GPS Vienna |  |
| Distance from map (km) |  |
| Distance from GPS (km) |  |
| Time of flight Vienna-Dubai (h) |  | Time of flight Dubai-Vienna (h) |  |
| Avg flight speed (km/h) |  | Avg flight speed(km/h) |  |

1. On the map, find Bratislava and Košice airports and describe their GPS data.
	1. Find the distance between them using the Distance Measurement tool.
	2. Find the online distance calculation tool using GPS coordinates, use it, and compare the result with the point a.
	3. Find the nearest flight Bratislava Košice on Google flights, and vice versa. Find out the lengths of flights and compare them. Calculate average flight speeds and evaluate their differences.

|  |  |  |  |
| --- | --- | --- | --- |
| GPS Bratislava |  | GPS Košice |  |
| Distance from map (km) |  |
| Distance from GPS (km) |  |
| Time of flight Bratislava- Košice (h) |  | Time of flight Košice-Bratislava (h) |  |
| Avg flight speed (km/h) |  | Avg flight speed(km/h) |  |

1. Find the Main Train Station Bratislava on the map.
	1. Find the distance from Trnava station by car and write it down.
	2. Find out the price of the return ticket TT-BA-TT.
	3. Calculate the cost of this trip with the Citroen C3 with the smallest petrol engine.
	4. Calculate how many passengers in the car it is worth to drive by car and not by train.

|  |  |  |  |
| --- | --- | --- | --- |
| Distance (km) |  | Price Super (euro/l) |  |
| Return ticket (euro) |  | Price by C3 (euro) |  |
| C3 consumption (l/100km) |  | X passengers? |  |

AFTER THAT TOGETHER

1. Compare the data from points 2 and 3 and try to evaluate them.

|  |  |  |  |
| --- | --- | --- | --- |
| Avg flight speed (km/h) | Avg flight speed (km/h) | Avg flight speed (km/h) | Avg flight speed (km/h) |
| Vienna-Dubai | Dubai- Vienna | Bratislava- Košice | Košice-Bratislava |
| Why are not same? | Why are not same? |