



2014 Student Program Lesson Plan

For step-by-step help in completing this document, please see the accompanying guide.

Date:	July 30, 2014	Class:	The model of the Solar System in scale
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Definition and Guiding Question

LESSON	LEARNING EPISODE
For the purpose of this STARTALK template a <i>lesson</i> is defined as a single learning experience lasting no more than ninety minutes. Learning experiences occur both in the classroom and/or in other settings. Longer blocks of time will involve several learning episodes and lesson plans.	For the purpose of this STARTALK template a <i>learning episode</i> is defined as a learning experience that addresses a specific aspect of a learning target or can-do statement. Learning episodes typically provide a limited amount of input with time allowed for guided and independent practice. The amount of time allotted for a learning episode is approximately equivalent to the age of the learner and will rarely be more than twenty minutes.

Questions to Consider Before and During Lesson Planning

<p>Do the activities in the lesson</p> <ul style="list-style-type: none"> ▪ provide sufficient opportunities for understanding new words <u>before</u> expecting production? ▪ provide multiple, varied opportunities for students to hear new words/expressions used in highly visualized contexts that make meaning transparent? ▪ provide students with an authentic purpose for using words and phrases? ▪ engage <u>all</u> students (as opposed to just one or two students at a time)? ▪ give students a reason for needing to/wanting to pay attention and be on task? ▪ vary in the level of intensity and the amount of physical movement required? ▪ take an appropriate amount of time considering the age of the learner? ▪ make the learner, not the teacher, the active participant?
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STAGE 1: What will learners be able to do with what they know by the end of this lesson?

<p style="text-align: center;">DO</p> <p style="text-align: center;"><i>What are the learning targets for this lesson?</i></p>	<p style="text-align: center;">KNOW</p> <p style="text-align: center;"><i>What vocabulary, grammatical structures, language chunks, cultural knowledge, and content information do learners need to accomplish the lesson can-do?</i></p>
<p>Interpretive Reading</p> <p>The students can understand the main idea and a few supporting facts about scientific discoveries from a authentic texts Int. H.;</p>	<p>Terms related to Astronomy, Physics:</p> <p>Astronomy terms: <i>большие планеты, Солнечная система, астероиды, кометы, карликовые планеты, орбита;</i></p> <p>Physics terms: <i>расстояния, размер, объем, температура, атмосфера, давление, плотность.</i></p>
<p>Interpretive Listening</p> <p>The students can understand teacher’s presentation with some unexpected details on topics related to Physics&Astronomy. Int. H.</p>	<p>Terms related to Astronomy, Physics:</p> <p>Physics terms: <i>расстояние, время, сила тяжести, плотность, давление, газообразный, состав атмосферы, состав почвы;</i></p> <p>Astronomy terms: <i>планета-гигант, планета земной группы, атмосфера, поверхность, динамические характеристики, траектория.</i></p>
<p>Presentational Speaking</p> <p>The students can give a brief oral presentation about main characteristics of the solar objects in a formal style Int. H.;</p>	<p>Logical structure of an academic style presentation: introduction, body, and conclusion;</p> <p>Academic style conjunctions: <i>во-первых, во-вторых, далее, так, таким образом, следовательно, подводя итоги, делая выводы, как уже было сказано;</i></p> <p>Academic style lexical resources and grammar forms;</p> <p><i>Terms related to Astronomy: планета-гигант, планета земной группы, газовый гигант, Солнце, пояс астероидов, облако Оорта, карликовая планет, комета.</i></p>
<p>Interpersonal Communication</p> <p>The students can express ideas and opinions when engaged in discussion about math problems solving Adv.L.;</p>	<p>The students work in teams, calculate and design the Solar System model in scale.</p> <p>The main parts of the model: <i>измерить расстояние, определить отношение, рассчитать пропорции, определить центр.</i></p>

The math terms: *пропорция, масштаб, отношение, больше, меньше, во...раз больше/меньше, умножить, разделить, вычислить.*

STAGE 2: How will learners demonstrate what they can do with what they know by the end of the lesson?

What will learners do (learning tasks/activities/formative assessments) to demonstrate they can meet the lesson can-do?

The students perform a classic exercise for visualization of how big our Solar System really is. Both the relative size and positions of planets in space are demonstrated in this outdoor exercise, using a mere peppercorn to represent the size of the Earth. The students are challenged to consider not only the main planets, but also some of the smaller objects orbiting the Sun. The students compare the relative sizes of the Solar System planets, two dwarf planets, and a comet. They determine the distances between the scaled planets on a map of the neighborhood and relate those distances to familiar landmarks.

STAGE 3: What will prepare learners to demonstrate what they can do with what they know?

How will you facilitate the learning?

What activities will be used to ensure learners accomplish the lesson can do? What will the teacher be doing? What will the students be doing?

Opening Activity

The teacher sets the main goal of the lesson for the students by a brief discussion about the model and the measures of the Solar System.

Time: 5 min

Learning Episode

The students watch, listen and understand teacher's presentation about the Solar System objects for the purpose to find out the most important ideas and details about different characteristics of the Solar System.

Time: 15 min

Learning Episode

The students read the authentic text, acquire the main idea and understand the most important details of text, create a chart with the main characteristics of a chosen object of the Solar System in depth. The students use their research for creation a travel brochure for that object.

Time: 15

Learning Episode

The students discuss ratios using the information in Workseet. The students find the scale that makes visible the small sizes of planets, as well as the large distances. They learn about ratios and scale models and than apply their knowledge for modelling of Solar System. The students compare the size and distance of the Earth to the other planets sizes and distances. The students calculate distances and sizes in scale and continue to fill out a Workseet.

Time: 10

Learning Episode

THE THOUSAND-YARD MODEL

The students design a model of Solar System depending on their Worksheet data. The students work in pairs or in a small groups to prepare a brief oral presentation about chosen object of the Solar System.

Time: 15

Materials needed for this lesson

- Authentic articles about Solar System objects.
- PowerPoint Presentations about main characteristics of the Solar System objects.
- Worksheet templates.

Reflection/Notes to Self

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