"Russian in the Sky and Outer Space"
Program for High School Heritage Language Learners of Russian at the University of Washington

STARTALK LEARNING PLAN

Designing Learning Experiences

Date:	Grade Range:	Targeted Performance Level:	Total Time for this Plan:
October 18, 2023	10-12	Listening, Reading, and Speaking: Advanced Mid	Online class of 1 hour and 15 minutes

Curriculum Connection

Program Can-Do Statement & Performance Assessment Task

Copy the specific program can-do statement from the curriculum (stage 1) and performance assessment task (stage 2) that you are working toward in this learning plan.

Interpretive Listening. I can listen to a live lecture, video lectures, or podcasts in STEM topics and beyond, identify the main idea and many interesting details from what I have watched or listened to.

Interpretive Reading. I can read article in STEM topics and beyond and understand the main idea and many interesting details from what I have read and answer guiding questions about it.

Students are able to formulate major problems that human biology presents to long space flights.
Students are able to pass a multiple-choice test to demonstrate their mastery of human bone remodeling biology and its terminology.
Students can compose and write down questions on basic biology of human bone in preparation for a meeting with a Russian space biologist who studies bone remodeling in space.
Students are able to navigate through a standard research article and compare it with a popular science article format.

Learning Episode #1

Number of minutes for this episode: __10__

Lesson Can-Do Statement	Vocabulary	Check for Learning
Identify the lesson can-do statement(s) from the curriculum (stage 3) that are the goals for this learning episode.	*How are culture and/or content part of the language chunks and words that learners will use?*	*What formative task will learners do to provide evidence that they met the lesson can-do statement?*
Interpretive Listening. I can listen to video lectures, or podcasts in STEM topics and beyond, identify the main idea and many interesting details from what I have watched or listened to.	The following phrases of specific scientific terminology from the videos are introduced and encouraged for use: обозримое будущее, физиология человека, факторы риска, уменьшение (потеря) мышечной и костной	Students can correctly identify limitations that human biology presents to long space flights by formulating their observations out loud for the rest of the class in a common discussion.

	массы, костная ткань, создание условий космоса на Земле, невесомость, отсутствие земной гравитации, притяжение Земли, модель невесомости	

Learning Experiences
What sequence of activities will learners engage in before they complete the check for learning for this episode? How will learners move through a cycle of input, sharing, guiding, and applying in each episode? Consider how you might differentiate in order meet the needs of all learners.

Students watch a 5-minute video of landing of a space ship in Kazakhstan and observe the physical state of the cosmonauts and astronauts. Then they watch 3 minutes from a popular science lecture on problems with human physiology for space flights. After watching, under the teacher's guidance, the class goes over vocabulary that was used in the 3-minute excerpt. Then students discuss how to formulate what problems human physiology presents for long space flights.

Materials Needed
What authentic resources, supplies, and other materials will you need to successfully implement this learning episode?

https://www.youtube.com/watch?v=HZ9hwvg8_wk
https://www.youtube.com/watch?v=F2OiiV4LYsg
list of the terminology

Learning Episode #2

Number of minutes for this episode: _20___

Lesson Can-Do Statement *Identify the lesson can-do statement(s) from the curriculum (stage 3) that are the goals for this learning episode.*	**Vocabulary** *How are culture and/or content part of the language chunks and words that learners will use?*	**Check for Learning** *What formative task will learners do to provide evidence that they met the lesson can-do statement?*
Interpretive Reading. I can read article in STEM topics and beyond and understand the main idea and many interesting details from what I have read and answer guiding questions about it.	A popular science articls about bones getting older faster in no-gravity conditions of space is from one of the most respected Soviet and Russian popular scientific journals known to each Russophone person – Наука и жизнь.	As the students take turns reading the article out loud sentence-by-sentence, they are encouraged to ask questions if they do not understand something. Questions to check comprehension are posed by the teacher in the process of reading.

Learning Experiences
What sequence of activities will learners engage in before they complete the check for learning for this episode? How will learners move through a cycle of input, sharing, guiding, and applying in each episode? Consider how you might differentiate in order meet the needs of all learners.

The students briefly scan the article online and make a guess what the article will say. Then the students take turns reading the article out loud sentence-by-sentence. Students are encouraged to ask questions if they do not understand something. Together the students summarize the main ideas of the article.

Materials Needed
What authentic resources, supplies, and other materials will you need to successfully implement this learning episode?

https://www.nkj.ru/news/44785/

Learning Episode #3

Number of minutes for this episode: _30___

Lesson Can-Do Statement *Identify the lesson can-do statement(s) from the curriculum (stage 3) that are the goals for this learning episode.*	**Vocabulary** *How are culture and/or content part of the language chunks and words that learners will use?*	**Check for Learning** *What formative task will learners do to provide evidence that they met the lesson can-do statement?*
Interpretive Listening. I can listen to video lectures, or podcasts in STEM topics and beyond, identify the main idea and many interesting details from what I have watched or listened to.	In a short Power Point presentation, precise scientific terminology from Russian textbooks that deals with structure, development, and remodeling of human bones on cellular level is introduced. The focus is on the terms for ostoblasts and osteoclasts. The lecture's goal is to prepare the students for the following week's interview with a Russian space biology scientist who studies bone remodeling in space.	The students pass a short multiple-choice quiz to demonstrate their understanding of the biology of bone structure and remodeling. (At home students read the biography of the following week's guest and prepare five questions to put to their guest the following week.)

Learning Experiences
What sequence of activities will learners engage in before they complete the check for learning for this episode? How will learners move through a cycle of input, sharing, guiding, and applying in each episode? Consider how you might differentiate in order meet the needs of all learners.

The students are presented with a short PowerPoint presentation, during which checking-for-comprehension questions are posed to the students. Individually, the students take a short multiple-choice quiz to test their knowledge and the quiz is gone over together in the class to ensure complete mastery of the terms.

Materials Needed
What authentic resources, supplies, and other materials will you need to successfully implement this learning episode?

PowerPoint presentation «Космос и кости» prepared by the native-speaker teacher, who also has Master's in biology

Learning Episode #4

Number of minutes for this episode: _15___

Lesson Can-Do Statement *Identify the lesson can-do statement(s) from the curriculum (stage 3) that are the goals for this learning episode.*	**Vocabulary** *How are culture and/or content part of the language chunks and words that learners will use?*	**Check for Learning** *What formative task will learners do to provide evidence that they met the lesson can-do statement?*
Interpretive Reading. I can scan or read article in STEM topics and beyond and	A scientific article on bone changes in space from a peer-reviewed journal is presented to the	Students correctly identify the title, authors and their affiliations, abstract,

understand the main idea and many interesting details from what I have read and answer guiding questions about it.	students to familiarize them with usual structure of a scientific article and vocabulary used to describe its parts.	introduction, materials and methods, results, discussion, and literature cited sections as parts of a serious scientific article. They notice multiple tables, graphs, and figures in the text. They notice the contrast between a popular science article and a serious peer-review research publication.

Learning Experiences
What sequence of activities will learners engage in before they complete the check for learning for this episode? How will learners move through a cycle of input, sharing, guiding, and applying in each episode? Consider how you might differentiate in order meet the needs of all learners.

In small groups, the students briefly scan the article and make a guess what the article will say. They study the structure of the article in the small group and report on what parts they have identified when the class gets together again.

Materials Needed *What authentic resources, supplies, and other materials will you need to successfully implement this learning episode?*

A copy of the article

ИЗМЕНЕНИЯ КОСТНОЙ ТКАНИ ЧЕЛОВЕКА В КОСМИЧЕСКОМ ПОЛЕТЕ II.

НЕКОТОРЫЕ ЗАКОНОМЕРНОСТИ И ОСОБЕННОСТИ (2015)

В.С. ОГАНОВ, А.В. БАКУЛИН, В.Е. НОВИКОВ, Л.М. МУРАШКО, О.Е. КАБИЦКАЯ

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Add additional learning episodes as needed by copying a learning episode box.

Post-Lesson Reflection

After implementing this learning plan, consider the following questions while reflecting on the successes and challenges of the lesson:

- What were the strengths of the lesson? Which activities helped to maximize the learning?
- Did all learners meet the goals of the lesson? Why or why not?
- What could you do to improve this learning plan if you address these lesson can-do statements again?

The students were completely engaged and enthusiastic about the material. The provoking questions of the Yakutenko video set the tone for the entire class. The quiz was just right: challenging enough to be interesting and simple enough to encourage the students. All the learners met the goals of the lesson for reasons listed above. In the future, if I have the very same group of students, I may want to postpone Learning Episode #4 for a class the week after our meeting with a Russian space biologist. Instead, the students might have benefited from a fun activity of trying to write couplets on the nature of bone remodeling cells.