ISS-ABOVE LESSON PLANS

Extensions into subjects beyond Astronomy

ISS-ABOVE Lesson Plans are designed around NGSS standards. However, a number of lessons span several subject areas. Below is a guide to the lessons, activities and their reach. Further details for specific lessons are on the next page.

Subject	Lessons	Activities
Geography	Unit 1: Lesson 1	Activity 8
	Unit 2: Lesson 1	
	Unit 4: Lesson 1	
	Unit 5: Lesson 1	
Mathematics	Unit 1: Lesson 2	Activity 1
	Unit 2: Lesson 1	
	Unit 3: Lesson 1	
	Unit 3: Lesson 2	
Programming	Unit 5: Lesson 1	
Life Sciences	Unit 4: Lesson 1	Activity 5
	Unit 6: Lesson 1	Activity 6
	Unit 6: Lesson 2	Activity 7
	Unit 6: Lesson 3	
Biology	Unit 6: Lesson 2	Activity 6
Careers	Unit 6: Lesson 3	
English	Unit 6: Lesson 3	

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Unit 1: Lesson 1 – Orbits **Using models to represent systems and the real world.** *Extension subject:* `Geography` Mapping from 3D to 2D The Mercator map as a distortion of reality The world map, timezones, dateline, continents, where are we	**Unit 1: Lesson 2 – Orbits** **Calculating velocity of an object in orbit.** *Extension subject:* `Mathematics` Functions of square root. Exponents Using pi (π). Using constants and variables Using a scientific calculator
Unit 2: Lesson 1 – ISS passes in your sky **Creating a model to show an overpass of the ISS** *Extension subject:* `Geography`, `Mathematics` Compass points Time in hr., min, sec Interpreting the above to predict when and where to see the ISS	**Unit 3: Lesson 1 – Scale of the solar system** **Model the Sun, Earth, Moon and ISS to understand relative orbit times** *Extension subject:* `Mathematics` Scaling Time and relative motion of objects
Unit 3: Lesson 2 – Scale of the solar system **Modelling the solar system and calculating planet volume and density** *Extension subject:* `Mathematics` Scaling, ratios Mass, relative mass, volume and density	**Unit 4: Lesson 1: Changing location** **Where in the world is the ISS-ABOVE?** *Extension subject:* `Geography`, *Life Sciences* Time zones, latitude, longitude What are people doing right now in (city)? Human identity and culture based on place
Unit 5: Lesson 1 – Scratch coding **Coding for the ISS distance from you** *Extension subject:* `Programming`, `Geography`, `Mathematics` Scratch coding Units, velocity of the ISS Creating your own program using Scratch	**Unit 6: Lesson 1 – Food in space** **Setting a table** *Extension subject:* `Life Sciences` How, when and where we eat Cooking and eating in space (dealing with gravity) Social time
Unit 6: Lesson 2 – Food, Exercise and Sleep in space **A round-robin look at living on the ISS** *Extension subject:* `Life Sciences`, `Nutrition`, `Biology` How food gets prepared (and tastes) Why is exercise important? Why is sleep important?	**Unit 6: Lesson 3 – Who's up there** **A study of ISS astronauts** *Extension subject:* `Life Sciences`, `Careers` `English` How do astronauts become astronauts? **What is their lifestyle like?**