SKY TOUR

OF THE UNITED STATES

Game Set Up, Instructions, and Materials

Based on the Fifth Grade Next Generation Science Standards for Astronomy

5-ESS1-1, 5-ESS1-2, 5-PS2-1

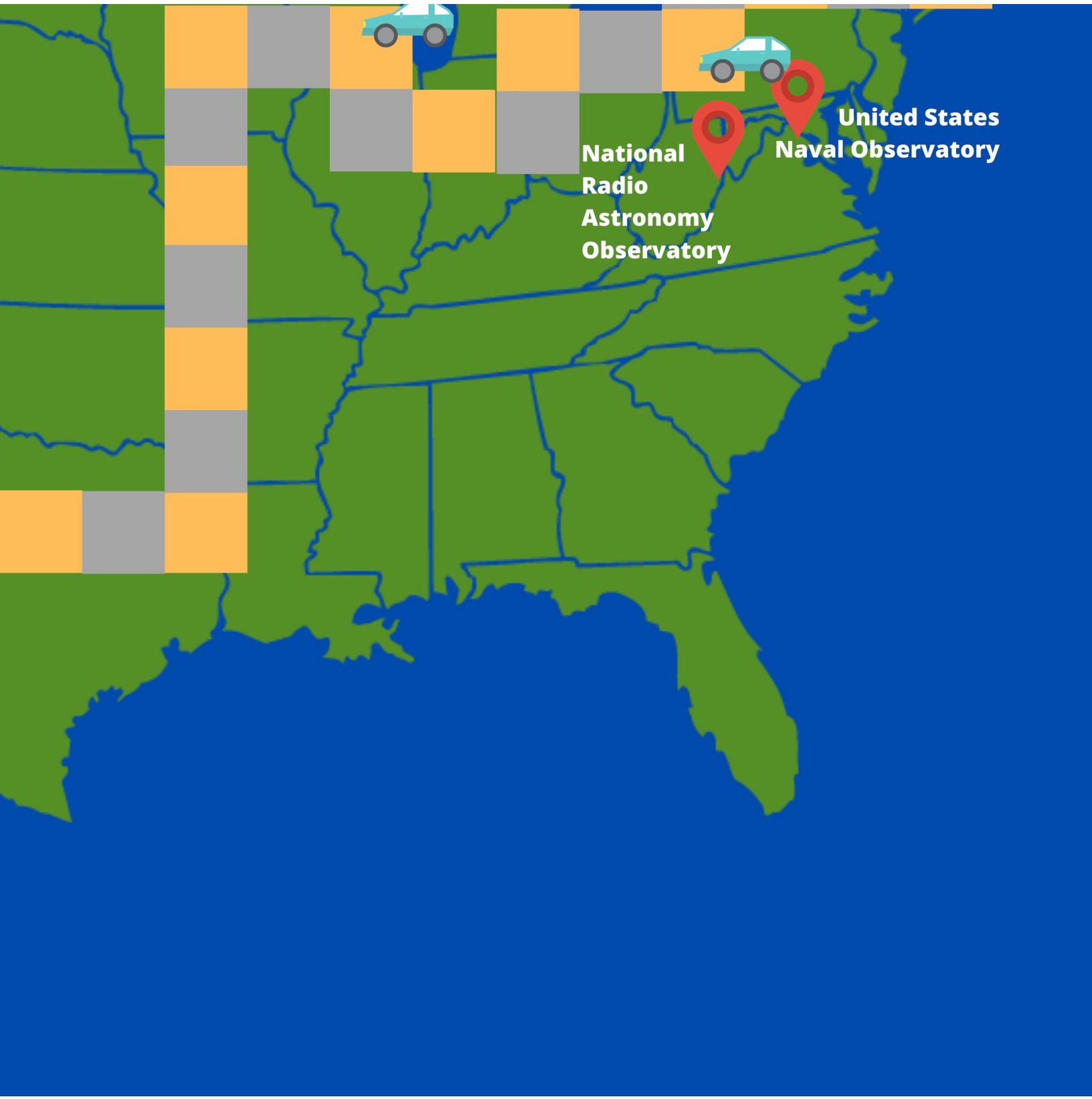
SKY T

OF

TOUR

THE UNITED STATES

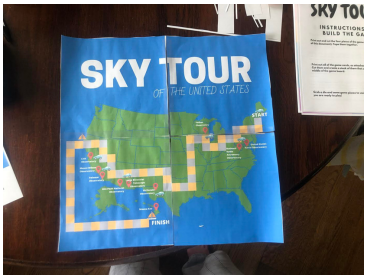

Lick
Observatory
Mount Wilson
Observatory
Palomar
Observatory
Large Binocular
Telescope
Observatory
Kitt Peak National
Observatory
McDonald
Observatory
Mauna Kea
FINISH


National
Radio
Astronomy
Observatory
United States
Naval Observatory

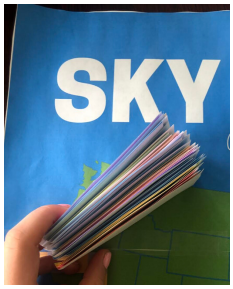
SKY TOUR

INSTRUCTIONS TO BUILD THE GAME

Print out and cut the four pieces of the game board (pages 2-5 of this document). Tape them together.



Print out all of the game cards, as attached to the game board. Cut them and create a stack of them that can be placed in the middle of the game board.

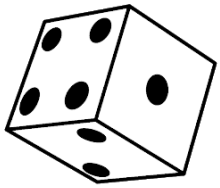


Grab a die and some game pieces to use for each player, and you are ready to play!

SKY TOUR

GAME INSTRUCTIONS

You will need:



Game pieces (1 die & 1 piece/player)
The game board, printed
The game cards, printed

Roll the die to determine which player will roll first. The player that rolls the highest number will go first, and you can move in a circle to take turns from there.

Put all the game pieces at the "START." Roll the die and move the number of places shown. Another player will pick up a question card for you and read you the question from the card. After you answer, the player who read the card will flip the card upside down to check your answer.

If the player landed on a GREY SQUARE, they will move forward ONE SPACE for answering the question correctly. If the player landed on an ORANGE SQUARE, they will move forward THREE SPACES for answering the question correctly. If the player did not answer the question directly, they will stay where they are.

The first player to reach the "FINISH" wins the game.

Fifth Grade

The collection of the sun and the eight planets is called our _____.

5-ESS1-1

Answer: solar system

Which four planets in our solar system are smaller and rocky?

5-ESS1-1

Answer: Mercury, Venus, Earth and Mars

Two planets are closer to the sun than Earth: Mercury and _____.

5-ESS1-1

Answer: Venus

Which four planets in our solar system are larger and gaseous?

5-ESS1-1

Answer: Jupiter, Saturn, Uranus and Neptune

True or false: the Universe contains millions of galaxies, including ours.

5-ESS1-1

Answer: true

The four planets that are larger than Earth in our solar system are _____, _____, _____, and _____.

5-ESS1-1

Answer: Jupiter, Saturn, Uranus and Neptune

True or false: scientists know the exact size of the universe.

5-ESS1-1

Answer: false! No one knows the exact size of the universe.

All of the planets in our solar system orbit the _____.

5-ESS1-1

Answer: sun

Our solar system is part of the _____ galaxy.

5-ESS1-1

Answer: Milky Way

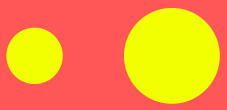
True or false: the Sun is a star.

5-ESS1-1

Answer: true

Fifth Grade

Two flashlights that look like the circles below are the same distance away. Which one looks brighter?



5-ESS1-1

Answer: the larger flashlight

True or false: the temperature of a star affects its brightness.

5-ESS1-1

Answer: true! Hotter stars are brighter than cooler stars.

If two stars are the same distance from Earth, which star will appear brighter?

5-ESS1-1

Answer: the bigger star

Two stars are the same size, and at the same distance from Earth, but one is much hotter than the other. Which star is brighter?

5-ESS1-1

Answer: the hotter star is brighter

True or false: if two stars are the same distance from Earth, the same temperature, and the same age, the larger star will appear brighter.

5-ESS1-1

Answer: true

Two stars are the same temperature, and at the same distance from Earth, but one star is much bigger than the other. Which star is brighter?

5-ESS1-1

Answer: the bigger star is brighter.

True or false: the brightness of a star is largely determined by its distance from Earth.

5-ESS1-1

Answer: true

True or false: the closest star to Earth is the sun.

5-ESS1-1

Answer: true. The sun is the only star in our solar system.

True or false: the age of a star has an impact on its brightness.

5-ESS1-1

Answer: True! The brightness of a star changes as they age.

True or false: stars of the same size can have different temperatures.

5-ESS1-1

Answer: true.

Fifth Grade

When you watch a sunset, is the Sun really moving across the sky?

Answer: No. The place you are standing on Earth is spinning away from the sun.

5-ESS1-2

What is a constellation?

Answer: A group of stars that forms a pattern in the sky. Constellations often have names based on what they look like.

5-ESS1-2

If the Earth were to spin twice as fast as it does now, how many hours would be in one day?

Answer: 12

5-ESS1-2

How do constellations appear to move in the sky?

Answer: Earth's rotation makes stars appear to move.

5-ESS1-2

If the Earth were to spin half as fast as it does now, how many hours would be in one day?

Answer: 48

5-ESS1-2

The Earth orbits around the _____.

Answer: sun.

5-ESS1-2

Does the moon rotate?

Answer: Yes! The moon rotates as it revolves around the Earth.

5-ESS1-2

The _____ orbits around the Earth.

Answer: Moon.

5-ESS1-2

What does the moon orbit?

Answer: The Earth

5-ESS1-2

Earth rotates around its _____, the invisible line that stretches between the North and South poles.

Answer: Axis.

5-ESS1-2

Fifth Grade

The force that keeps our bodies on the ground and pulls us towards the center of the Earth is called _____.

Answer: gravity

5-ESS1-2

True or false: your shadow is longer at some times of day than it is at others.

Answer: true! The length of your shadow will change throughout the day depending on where the sun is in the sky.

5-ESS1-2

Which season has the greatest number of hours of daylight?

Answer: Summer

5-ESS1-2

True or false: your shadow points in a different direction in the morning than it does at night.

Answer: true! The direction that your shadow points is dependent upon where the sun is in the sky.

5-ESS1-2

Which season has the least number of hours of daylight?

Answer: Winter

5-ESS1-2

True or false: some constellations, or groups of stars, can be seen all year long, despite Earth's rotation.

Answer: true.

5-ESS1-2

How long does it take the Earth to rotate once on its axis?

Answer: One day, or 24 hours

5-ESS1-2

True or false: some of the stars that we see in the sky tonight might not be visible to us in a few months due to the Earth's rotation.

Answer: true.

5-ESS1-2

How long does it take the Earth to revolve around the sun?

Answer: 365 days, or one year

5-ESS1-2

True or false: we have more hours of daylight in the winter than in the summer.

Answer: false. There are more hours of daylight in the summer than in the winter.

5-ESS1-2

Fifth Grade

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5-ESS1-2

Fifth Grade

What is the difference between weight and mass?

Answer: mass is the amount of matter within an object, while weight measures the amount of gravity affecting that mass

5-PS2-1

True or false: gravity refers to the amount of attraction between the masses of two objects,

Answer: true

5-PS2-1

Why can an astronaut jump higher on the moon than she can on Earth?

Answer: an astronaut will weigh less on the moon because the force of gravity is weaker

5-PS2-1

True or false: you will weigh more on Mars than you will on Earth.

Answer: false. You would weigh less on Mars than you do on Earth.

5-PS2-1

True or false: the force of gravity is stronger on Earth than on the moon because Earth is much bigger.

Answer: true

5-PS2-1

True or false: the mass of an object is dependent upon gravity.

Answer: false. The mass of an object is dependent upon the amount of matter within an object.

5-PS2-1

True or false: the more mass an object has, the more it weighs, and the greater the force of gravity affecting the object.

Answer: true

5-PS2-1

True or false: your mass is less on the moon than it is on Earth.

Answer: false. Your mass does not change, but your weight does, since weight is dependent upon gravity and mass is not.

5-PS2-1

True or false: Newtons is the measurement used for the force of gravity.

Answer: true

5-PS2-1

True or false: an object is rotating when it moves around another object.

Answer: false. When an object moves around another object, it is revolving.

5-PS2-1

Fifth Grade

True or false: gravity is a force that pulls objects towards the center of the Earth.

Answer: true

5-PS2-1

If you hit a baseball into the outfield, what force eventually pulls the ball down to the ground?

Answer: gravity

5-PS2-1

True or false: when two forces act together, the forces applied should be added to determine the total force.

Answer: true

5-PS2-1

If you kick a soccer ball, it rolls for about 10 feet, and then it stops, what force caused the soccer ball to stop?

Answer: friction

5-PS2-1

True or false: when two forces act against each other, the forces applied should be added to determine the total force.

Answer: false. These forces should be substracted.

5-PS2-1

An upward force exerted by water is called:
A) Magnetism B) Gravity
C) Friction D) Buoyancy

Answer: D

5-PS2-1

True or false: if forces are not equal, and therefore unbalanced, motion will occur.

Answer: true

5-PS2-1

True or false: the word "orbit" refers to the path that an object takes as it revolves around another object.

Answer: true

5-PS2-1

True or false: if forces are equal, and therefore balanced, motion will not occur.

Answer: true

5-PS2-1

True or false: an object is revolving when it moves around another object.

Answer: true

5-PS2-1