GENERATIONGENIUS
ALWAYS QUESTION. ALWAYS WONDER.

LESSON PLAN

SEASONS AND DAY LENGTH

GRADES K-2

SUMMARY

Students will analyze sunrise and sunset times from different seasons. Duration: 45 minutes.

NEXT GENERATION SCIENCE STANDARDS CORRELATION

1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year

Science & Engineering Practices	Connections to Classroom Activity
Analyzing and Interpreting Data	• Students will analyze sunrise and sunset data from different times of year.
Disciplinary Core Ideas	**Connections to Classroom Activity**
ESS1.B: Earth and the Solar System Seasonal patterns of sunrise and sunset can be observed, described and predicted. (1-ESS1-2)	• After analyzing data students will see that there is more daylight during the summer months than the winter months. They will relate this to temperature.
Crosscutting Concepts	**Connections to Classroom Activity**
Patterns Patterns in the natural world can be observed, used to describe phenomena and used as evidence. (1-ESS1-1),(1-ESS1-2)	• Students will notice patterns in sunrise and sunset data and be able to continue the patterns.

ENGAGE

Ask students if anyone has ever been to an amusement park before. Give students a chance to share out loud. Ask them which amusement park they think is the most famous. If no one comes up with Disneyland share this idea. Tell students that Disneyland is considering a new rule that visitors can only be there when it's light outside. (This isn't true, but for this activity we can pretend). They will have a chance to analyze some data from the city of Anaheim, CA to decide which day would be best to go to Disneyland based on the amount of daylight.

MATERIALS

- Data tables
- Pencils

DIY Activity (per group)

- 4 Pieces of construction paper
- Bowl
- Pencil
- Glue stick
- Pair of scissors
- Pack of markers

EXPLORE

The following tables of sunrise & sunset data can be written or projected onto the board.

Date	Sunrise	Sunset	Daylight
December 18	6:50 am	4:45 pm	9 hours 54 minutes
December 19	6:51 am	4:45 pm	9 hours 53 minutes
December 20	6:52 am	4:45 pm	9 hours 51 minutes

Date	Sunrise	Sunset	Daylight
June 6	5:40 am	8:00 pm	14 hours 20 minutes
June 7	5:40 am	8:01 pm	14 hours 21 minutes
June 8	5:40 am	8:02 pm	14 hours 22 minutes

Give students an opportunity to talk in their groups about patterns that they notice. For more advanced students, challenge them to continue the pattern by writing down what they think the next few days would look like in each sequence. Once the data has been discussed and analyzed, students should choose a date for their trip to Disneyland.

EXPLAIN

Have students share their ideas with the class. Some questions for discussion might be, "What patterns did you notice?" "Are the days getting shorter or longer?" "How does the daylight time in June compare to the daylight time in December?" Ask groups which date they have decided on for their trip to Disneyland and ask them to justify their response. Hopefully students will choose a day with lots of daylight so that they can ride the rides for longer. Of course, accept all ideas; maybe someone wants to go in winter, so they don't get too sweaty!

Next talk about the amount of daylight and relate it to the seasons. Prompt with questions such as, "What season is it in December?" "What season is it in June?" "What is the weather like during those times of year?" "How does this relate to

the amount of daylight?" (Hopefully this will lead them to conclude that it is warmer in summer because the sun is out for more hours, hence warming the Earth's surface for more hours than winter.)

ELABORATE

WATCH THE GENERATION GENIUS SEASONS AND DAY LENGTH VIDEO AS A GROUP

Then facilitate using the Discussion Questions.

EVALUATE

Students can play the online Kahoot! quiz game located below the video which provides downloadable scores at the end of the quiz game. Alternatively, you can use the paper quiz or the exit ticket questions. All these resources are located below the video in the Assessment section.

EXTENSION

This website has sunrise and sunset data for any city you type in. https://www.timeanddate.com/sun/usa

More advanced students can play with this tool to compare daylight hours in the fall and spring as well as look at different parts of the world. Another adjustment you can make for more advanced students is to have them figure out the hours and minutes of daylight given sunrise and sunset data instead of providing it.