

# “Day and Night” Outline

## Overview

An outline for a lesson for educators to be able to focus on the science component of science fiction. Science fiction provides the reader with the ability to explore a universe where the climate of Earth is vastly different. It also allows people to use what we know about science to imagine the changes that could happen to our world by climate change. In this activity, students will imagine a climate that is different from our own but plausible. The climate is that of a tidally-locked planet. The activity is for students to write a story about characters that live somewhere on this planet.

### *Subject:*

Science

### *Suggested Levels:*

Middle School/High School

### *Learning Objectives:*

- For students to think critically about what a world with a different climate would look like and how a different climate would alter society
- Understanding the relationship between the earth rotation and the sun and how that sets up the present climate
- Students to write and think about integrating science with the way students' imagine stories

### *NGSS:*

- [MS-ESS2-6 Earth's Systems](#)
- [MS-ESS3-3 Earth's Systems](#)
- [HS-LS2-6 Earth's Systems](#)

### *Materials Needed:*

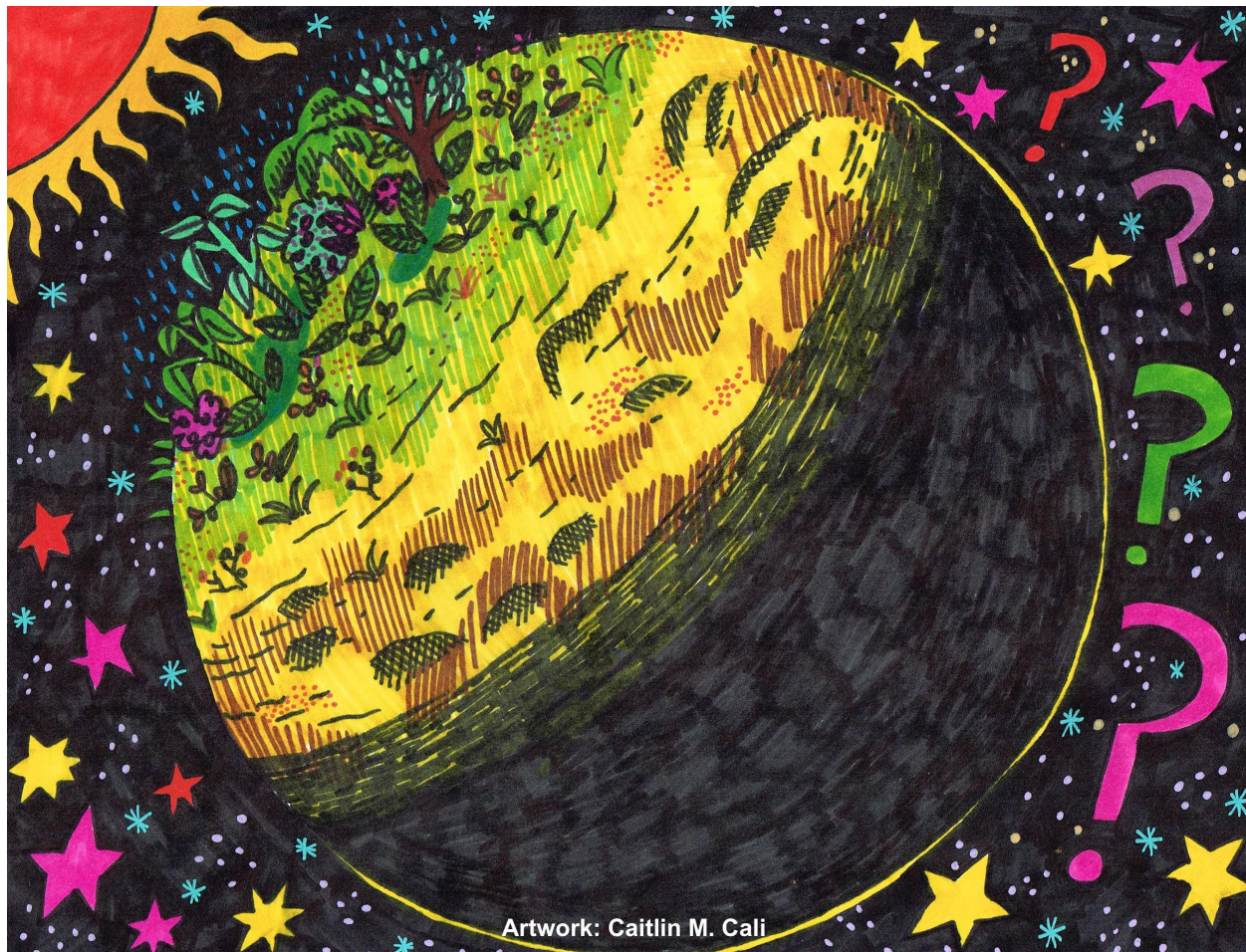
- Writing utensil
- Paper
  - Could also be conducted on the computer or any device
- Pens/Pencils/Markers

### *Background Information:*

This lesson focuses on science fiction and the science behind the storytelling. The powerpoint presentation focuses on the relationship between the earth rotation and the sun and how that sets up the present climate we live in today. For example, the tropics face the sun all the time due to the Earth's rotation which is why they are so lush and green while the poles are icy because those parts of the earth get the least amount of sunlight or insolation. This activity is geared towards students developing the characters in their story and creative writing, but it also functions as an introduction to the earth's climate and how insolation affects that climate.

*Additional Reading/Resources:*

- [Video of the Prompt with an Artistic Rendition of the Planet](#)
- Caitlin M. Cali Artwork



- 
- Alternate Earth Powerpoint

### Activity 1- "Day and Night"

*Time Required: 35 minutes - 1 hour*

Climate scientists think about earth and space and why things are the way they are. But what would happen if the sun didn't rise in the morning? On Earth, it takes 24 hours to take on complete rotation around the sun. The earth could really rotate much slower around the axis and our days could be much longer, if this rotation took one year, that there would be no day and night at all because one side of the earth would always be rotating around the sun and rotating itself. Africa would be day all the time and South Africa and Asia would be night time all the time. There are worlds out there where that is really the case, but what would that be like for Earth?

Each student will write a story with this setting, where the world is either night time or day time all the time. Some questions that can prompt their stories:

- Would you visit the other side?
- What would it be like to live there?
- What sort of houses would people live in?
- How would life be different? How would people interact with each other?

## Discussion/Wrap Up

The instructor should allow around 20 minutes for the students to share their thoughts and parts of their stories.

1. Did you focus more on the positive aspects of this scenario or the negative aspects? Why did you choose this?
2. In what ways did students connect the characters with the environment?

It is important to encourage the students to share the worlds they created and the instructor should focus on what community building aspects the students designed.

## Connections with Other Subjects

This presentation can be applied to a multitude of subjects.

English → This lesson provides many opportunities for science fiction short stories, poems, or books to be incorporated. The students could read several stories before this lesson as inspiration for their writing piece or turn this lesson into a longer module over several classes if the instructor would like the students to read a variety of science fiction works. The book *Octavia's Brood: Science Fiction Stories from Social Justice Movements* edited by Adrienne Maree Brown and Walidah Imarisha is an anthology that could be used for this purpose.

Art or Graphic Design → The students can draw or design what they envision the world where half of the population lives only in day and the other half only in night, looks like. They can incorporate the characters from their story and this would provide the students with an opportunity to show the setting of their story because each student will interpret this differently.