



## Spring Into Summer

# Homeschool Lesson Plan

### Raddish Lesson Plan Road Map

We design these lessons to be adaptable and flexible to your students and your life. You can do A Little Taste in ~45 minutes, or you can use the extension activities and make the projects and activities listed last over several lessons or even weeks. The lessons are meant to be interdisciplinary, covering many subject areas at once. Students of all ages can use these materials, with learners who are pre-writers able to draw or verbally share responses.

If desired, you could extend these lessons into a project-based learning unit of study, where students tackle a real world problem and create solutions. The learning happens in the process of getting to the presentation of the solution, and students often find it more meaningful when they are investigating a topic of their choice.

For a deeper look at the topic, A Big Bite offers extension ideas for learners who are able to read, write, and think on a higher level.

We always love to see your finished projects! You can share them in our Facebook group, [The Raddish Table](#), or email us [hello@raddishkids.com](mailto:hello@raddishkids.com).

## A Little Taste

**Driving Questions:** How can we use the sun's energy in different ways?

### Resource List

#### Background Information (also linked within lesson)

- Sun! One in a Billion, picture book from Stacy McNulty, <https://bookshop.org/books/sun-one-in-a-billion/9781250199324>
- Mr Bell reads Sun! One in a Billion!, video read-aloud from Landon Bell, <https://www.youtube.com/watch?v=s2xgD9R0Zu4>
- Solar Cooking | National Geographic, video from National Geographic, <https://www.youtube.com/watch?v=Ofn7iqPDTeY>
- Solar Oven Pizza Box Experiment - Solar oven project/Solar cooker, video from Kids Fun Science, <https://www.youtube.com/watch?v=kBmy-Aelzp0>
- Solar Nachos, tutorial from Raddish, [https://www.raddishkids.com/blogs/bonus-bites/solar-nachos?\\_pos=1&\\_sid=3ff83ce86&\\_ss=r](https://www.raddishkids.com/blogs/bonus-bites/solar-nachos?_pos=1&_sid=3ff83ce86&_ss=r)
- “Brew Sun Tea”, guide from Tinkergarten, <https://tinkergarten.com/activities/brew-sun-tea>
- “Make S’mores With a Solar Oven”, guide from NASA Climate Kids, <https://climatekids.nasa.gov/smares/>

#### Optional Extensions

- *Why the Sun and the Moon Live in the Sky*, picture book by Elphinstone Dayrell, <https://bookshop.org/books/why-the-sun-and-the-moon-live-in-the-sky-an-african-folktale/9780395539637>
- Why the Sun and the Moon Live in the Sky, video read-aloud from Educational Video Library, <https://www.youtube.com/watch?v=6tEH6J5C3qs>
- Fiery Folklore: 5 Dazzling Sun Myths, article from Live Science, <https://www.livescience.com/20415-folklore-5-sun-myths.html>
- Here Comes the Sun-Powered Energy, podcast from Wow in the World/NPR, <https://www.npr.org/2019/04/19/715233983/here-comes-the-sun-powered-energy>
- Day and Night World Map, guide from Time and Date, <https://www.timeanddate.com/worldclock/sunearth.html>
- “Pluto is no longer a planet - or is it?” article from Science News for Students, <https://www.sciencenewsforstudents.org/article/pluto-dwarf-planet-definition-iau-astronomy>
- “Mont. girl wins planet mnemonic contest”, article from USA Today, <https://abcnews.go.com/Technology/story?id=4348039&page=1>

## Conceptual Knowledge - What Do You Want Them to Know?

1. The sun provides energy to the earth and all who live here in different ways.
2. You can harness and use the sun's energy in many ways, including in preparing foods and drinks.

## Key Vocabulary

- **sunlight absorption** - transformation of energy from the sun into the surface/objects it hits by increasing the temperature of the surface
- **reflection** - the throwing back of light, heat, or sound by a surface or object without absorbing it
- **solar radiation** - radiant energy emitted by the sun
- **ultraviolet rays** - 10% of the sunlight that comes to earth is ultraviolet; UV rays are invisible to the human eye

## Cross-Curricular Links

- Language Arts, Science, Math, Art

## Project Idea/Scenario

Students will showcase how solar cooking and solar ovens are ways to use solar energy and materials from around your house to prepare food.

## Plan the Process: What Will the Students Do?

Students will learn about the sun and its power, and then test how to best harness solar energy to use in cooking.

## Warm-up Activity - Activating Background Knowledge

- If possible, sit outside and discuss where you like to be on a sunny day. What activities are perfect for doing in the sun? How does the sun affect your ability to do certain things?
  - What are the downsides to a very sunny day? How do we use the sun to our advantage, and how do we work to block its heat and rays when it's too much?
  - Discuss getting into a car that has been sitting in the sun for a while. What does the car's interior feel like when you first get in? Why does it feel so hot inside the car?
  - Have you ever left any sort of food or drink inside a hot car? What happened to it?
    - We are going to examine how to harness the sun's power to transform ordinary ingredients into delicious food!

## Sequence/Procedure

1. [Read](#) or [listen to](#) the book *Sun! One In a Billion*.
  - a. What are some new things you learned about the sun? What did you already know?
  - b. Which ways do we use the sun's power currently? Are there ways not mentioned in the book that we are using the sun for a different purpose or energy source?

2. [Watch the video from National Geographic](#) and learn about solar cooking.
  - a. How does it work? How is it different from using an oven in your house?
  - b. What conditions would you need in order to have a solar oven in regular use where you live?
3. With some materials and a sunny day, you can explore cooking using the sun! Review the different methods for making your own solar oven; [check out making nachos using a Raddish box](#) or [the recipe for s'mores using a pizza box](#) (review [the tips from NASA Climate Kids for s'mores in a solar oven](#) as well.)
  - a. Are both the methods the same? How does the size of the box affect cooking times and capabilities?
  - b. Gather the appropriate materials and ingredients to test out one or both of the recipes.
  - c. Record your predictions, observations, and results on the handout on page 8 of the lesson plan.
4. Talk through your results: if you were to use this method again, what would you change?
  - a. Consider the weather conditions (what might you want to know about the sun and its position in the future), your solar oven's structure, and recipe modifications.
  - b. Do you think that the size of your box changes the results? What do you think would happen if you did the s'mores in the Raddish box, and the nachos in the pizza box?
5. Select a project from the list below to complete. Share the finished project while enjoying any of the recipes from Spring Into Summer!

### **Possible Creations**

1. Host a sun restaurant! You can offer nachos, s'mores, [sun tea](#), or other recipes that you think could be made using the sun's energy. Create a menu that explains the ordering process; how long will your diners have to wait to receive their food? Remember to include operating hours, location, and any other important details for diners who would be coming to your solar restaurant for the first time.
2. Create a display of two different solar ovens, highlighting the different features of each. Include photos or other evidence of their success in preparing food; imagine you are trying to sell people on trying out one of your solar ovens for the first time.
3. Create a tutorial and recipe for someone learning how to make something in a solar oven. What steps are essential? What do you wish you had known before starting? What recipe would you advise them to make?

### **Extensions**

1. [Read](#) or [listen to](#) the folktale *Why the Sun and the Moon Live in the Sky*, and then [read through other depictions of the sun](#) in folk tales. What qualities is the sun usually given in these stories? Compare the sun in two different tales and see how the qualities overlap and differ.
2. [Listen to the Wow in the World podcast about solar energy](#). Create a poster highlighting different ways you and your community can use solar and other renewable energy.

3. You know that we revolve around the sun in our solar system, but just where is the sun in relation to you? Look at [this guide](#) to see how the sun is positioned to you right now, and review where earth is in relation to other planets. [With recent understanding of dwarf planets](#), learn about how [NASA hosted a contest](#) for the best way to remember the new planet order. Can you create your own mnemonic device to remember the order?

## A Big Bite

### Driving Questions:

How do we enjoy the sun safely?

### Resources

- *The Sun is Kind of a Big Deal*, picture book from Nick Seluk, <https://bookshop.org/books/the-sun-is-kind-of-a-big-deal-9789865517243/9781338166972>
- The Sun is Kind of a Big Deal Read Aloud, video read-aloud from Rockin Read Alouds, <https://www.youtube.com/watch?v=jwcA3UZtk74>
- How to Find the Distance of a City From the Equator, guide from Sciencing, <https://sciencing.com/distance-city-equator-7484864.html>
- SPF Science Experiment, tutorial from Children’s Museum of Sonoma County, <https://www.cmosc.org/spf-science-experiment/>
- “Los Angeles is painting some of its streets white and the reasons why are pretty cool”, article from CBS News, <https://www.cbsnews.com/news/los-angeles-is-painting-some-of-its-streets-white-and-the-reasons-why-are-pretty-cool/>
- White Paint That Could Replace Air Conditioning | Game Changer for Climate Change?, video from CRUX, <https://www.youtube.com/watch?v=T1wZNxtSktI>
- “Eating, Drinking Wisely Can Help Keep You Cool”, article from Inside Science, <https://www.insidescience.org/news/eating-drinking-wisely-can-help-keep-you-cool>
- “Keeping Cool With Shadows”, article from NASA, [https://www.nasa.gov/audience/forstudents/k-4/stories/F\\_Keeping\\_Cool\\_With\\_Shadows.html](https://www.nasa.gov/audience/forstudents/k-4/stories/F_Keeping_Cool_With_Shadows.html)
- DIY Sundial for Kids, video tutorial from The Winkle, <https://www.youtube.com/watch?v=c2gWj48kxUE>

### Project Idea/Scenario

Design the perfect sun-sational pool party, where you think through all the elements of a sunny day to provide a safe and fun way to enjoy the outdoors with guests.

### Sequence/Procedure

1. [Read](#) or [listen to the book](#) *The Sun is Kind of a Big Deal*.
  - a. What do you notice about the style of the book? How does personifying (or giving the planets and the sun human qualities) change the feeling of the story?
  - b. How does the sun affect life on earth? How does it specifically affect daily life for people?
2. Take a few minutes to reflect on the last party attended on a sunny day outdoors. Write down thoughts about how the sun affected the party; consider if it was comfortable for all, how the temperature affected guests, food, and activities.
  - a. Share thoughts, and answer the questions: Is there a perfect temperature for an outdoor party? Is there a perfect temperature and time of year for a pool party?
  - b. What problems can the sun pose for any outdoor event?

3. Imagine that you are hosting a pool party for your friends at your nearest pool. (If there is not one near you, pick your favorite public park and imagine a pool has been added to the facility.)
  - a. Your task is to figure out how to host a perfect pool party that uses the good effects of the sun while also mitigating the negative effects.
4. Using the list of features and issues of the sun, you can now use the resources below to gather information to plan your party. Record your information on the handout, found on page 9 of the lesson plan.
  - a. Where will your party be located in terms of proximity to the sun? Use [this site to figure out how close you are to the equator](#), and then also record what season your area is in, and how many hours of daylight you can expect in the coming days.
  - b. To protect yourself and your guests from sunburn, sunscreen will be needed. [Use this experiment to test the sunscreen](#) you have on hand, and then use your results to display the effectiveness of sunscreen for your guests.
  - c. Do the colors of your decorations or of the colors of clothing that people wear make a difference? Learn about [some](#) of the [ways that color can affect temperature](#), and record your impressions.
  - d. What shade is available at your location during the sunniest parts of the day? Walk through your location and evaluate the shadows cast and where the shade is; [learn about the size of shadows](#) in relation to the sun's location.
  - e. What kind of food do you serve at a pool party? [Read about what food or drinks can do in terms of cooling you down](#).
5. Using the data collected, choose a project from the list below and complete. Share the finished project while enjoying any of the recipes from Spring Into Summer!

### **Possible Creations**

1. Make a video teaching others how to host a sun-safe celebration! Give details on what factors to evaluate, how to set up areas for all the activities, and how to make it fun while protecting people from the harmful effects of the sun.
2. Create a sundial schedule for your party. [Use the tutorial to build your own sundial](#), then write out the schedule to post alongside it showing the timing of each event for the party and how to check the sundial to assess if it's the right time to transition to each new activity.
3. Diagram and draw out your perfect party setup. Map out the location and mark out the spaces for the pool, for shade, for eating, and for other activities. Using the location space, think about how many people could comfortably attend, and include your guidelines for how you chose the layout and attendees on your party diagram.



## SOLAR OVEN SCIENCE

<p><b>WHAT I DID</b> Include when, where, and other details of solar oven</p>	<p><b>DRAW</b> Setup of the oven</p>
---	--

<p><b>OBSERVATIONS</b></p>	<p><b>DRAW</b> Your finished result</p>
----------------------------	---

<p><b>WHAT I WOULD CHANGE</b></p>	<p><b>DRAW</b> What would look different next time?</p>
-----------------------------------	---



## Plan a Pool Party!

Learn about different factors you need to consider in planning your party, and record your observations below.

### EQUATOR LOCATION

<b>PREDICTION:</b>	<b>OBSERVATION/CONCLUSIONS:</b>
--------------------	---------------------------------

### SUNSCREEN TEST

<b>PREDICTION:</b>	<b>OBSERVATION/CONCLUSIONS:</b>
--------------------	---------------------------------

### COLOR CONDUCTIVITY

<b>PREDICTION:</b>	<b>OBSERVATION/CONCLUSIONS:</b>
--------------------	---------------------------------

### SHADE SIZE

<b>PREDICTION:</b>	<b>OBSERVATION/CONCLUSIONS:</b>
--------------------	---------------------------------

### COOL FOODS

<b>PREDICTION:</b>	<b>OBSERVATION/CONCLUSIONS:</b>
--------------------	---------------------------------