

**Weekly Lessons/Overview and Goals:** Students will learn about shadows

**TEKS:**

4.8 "Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:"

4.8C collect and analyze data to identify sequences and predict patterns of change in shadows, seasons, and the observable appearance of the Moon over time (S)

**Unit 8 Vocabulary:**

4.8C

data

pattern

full moon

sequence

Seasons

first quarter moon

predict

Moon

third quarter moon

shadows

Moon phases

new moon

prediction

**Monday: Shadows**

**Essential Question:** What is a pattern?

**Technology Lesson** for February. Make sure you note in the campus spreadsheet that the lesson has been completed.

**Preview for the upcoming unit if time:**

[Content Connections Video - Changes to the Earth](#)

**Tuesday: What are shadows?**

**Essential Question:** What effect does the change of seasons have on shadows? *Engage and Explore only today*

**Engage** Probe, [No Shadow](#). \*you can do four corners, small group discussion or pair/share. Really spend some time listening to student ideas and allow time for students to discuss with each other.

\*Today will be an introduction to the unit. Introduce vocabulary to students. Talk about how you will build your word wall as a class.

Here is a [link](#) to the vocabulary for this unit. You can print it out or post.

**Explore**

\*Talk about the word “pattern”. Have students regroup after the activity and talk about how the word “pattern” would apply to Earth science.

On chart paper, create a list of where we see patterns in science. Some ideas include: weather, seasons, day and night cycles, moon cycles.

**Wednesday: How can we model shadows?**

**Essential Question:** What effect does the change of seasons have on shadows?

**Engage:** Picture Book on Shadows. Below is a list of books you can look for in the library

*Light: Shadows, Mirrors and Rainbows*  
*Hortense and the Shadow*  
*Shadow*

[\\*\\*Melinda's 5E Lesson](#)

### Explore: Shadows

Supplies needed for this activity:

- Flashlights, one per table
- Clay ball for each table
- One new pencil for each table
- Butcher paper, white (one sheet per table, enough to cover)

Brainstorm with students how shadows look different throughout the day. Have students construct a shadow maker by completing the following steps:

1. Cover the table with butcher paper or use dry-erase markers directly on tabletop.
2. Place a pencil upright into the clay. Place the pencil in the center of the table.
3. Label "Sunrise" at one end of the table and "Sunset" at the other end of the table.
4. Use the flashlight at different angles to simulate the Sun at sunrise, noon, and sunset. \*Sometimes students may need to bring the flashlight up higher to see and mark the end of the shadows. Sunrise and sunset will have very long and blurry shadows on the table.
5. Have students mark and compare the shadows. \*Ask questions such as "Can you predict what 3:00 p.m. would look like? Challenge students to describe how sundials can show different times of the day.

**Explain:** Shadows and seasons depend on the position of the Sun. The Sun's shadows are the longest at the beginning and the end of the day. They are also longer in the winter than in the summer. Shadows are the shortest at noon since the Sun is directly overhead. Although shadows are observed inside the classroom during this Explore activity, students should also observe shadows outside.

**Elaborate/ Evaluate:** students will pair share how shadows are made. Students will share. Encourage class discussion.

[Exit Ticket](#)

**Thursday:** Shadow measurement, weather permitting!

**Essential Question:** What causes shadows?

[5E Lesson, Day 2](#)

**Friday: Word Wall**

**Essential Question:** What causes shadows?

**Explain**

Notice and wonderings from Thursday

**Elaborate**

Using chart paper (1 per table) have student table groups create a poster explaining how shadows are formed. They may use words, drawings or both.

**Evaluate**

Once you have gallery walked, identify any misconceptions. Discuss. Students will add to the word wall.

**Differentiation:** A variety of activities (application, concrete, and kinesthetic) will be incorporated into both days to engage all learners. Kagan structures will be introduced the first week of school.