

Name \_\_\_\_\_

## Welcome to the Supercharged Science

# Solar Astronomy Teleclass Webinar!

You can fill out this worksheet as we go along to get the most out of time together, or you can use it as a review exercise at the end of the class to see where your strengths are.

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### What we're going to cover today:

- Properties of Light
  - Wavelength
  - Intensity
  - Coherence ( $\lambda$ , direction, f)
  - Polarization
  - Speed
  - Reflection
  - Refraction
  - Diffraction
  - Using diffraction to measure small objects
  - Spectroscopy
  - Absorption Spectra
  - Emission Spectra
  - Doppler Shift
  - Black Body Radiation
  - Solar Composition
  - Coronal Mass Ejections
  - Solar Flares
  - Solar Space Missions
  - Solar Rotation
  - Solar Maximum
  - Aurorae
  - Solar Observing Techniques
  - Measuring the speed of light
- 

Do this NOW: Write down two things you want to learn about stars and/or astronomy:

\_\_\_\_\_

\_\_\_\_\_

Do this NOW: Write down WHY you want to learn about the things you mentioned above. What will it give you, or provide you with, or make possible for you if you now understand these things that you wanted to learn?

\_\_\_\_\_

\_\_\_\_\_

Name \_\_\_\_\_

**IMPORTANT:** During class, you can either fill out the worksheet, OR if that's too stressful or a hassle, just set it aside and fill it out after class is over so you can enjoy watching the class.

**Material List:**

- Hair (one strand)
- Tape
- Pencil
- Ruler or yardstick
- Paper
- Calculator
- Red laser
- Flashlight
- Glass of water
- Large chocolate bar
- Microwave
- Plate
- Orange highlighter
- Diffraction grating OR use an old CD

Name \_\_\_\_\_

### During the Lesson:

You can look over the worksheet so you know what to listen for as you go through the class with me, or you can go through it along with me during class. OR... flip it over and forget about it and just enjoy the class. When class is over, flip it back over and fill it out and be amazed at how much you've picked up and learned!

During our presentation, feel free to take notes for yourself in the spaces below:

1. What are the basic properties of light?

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

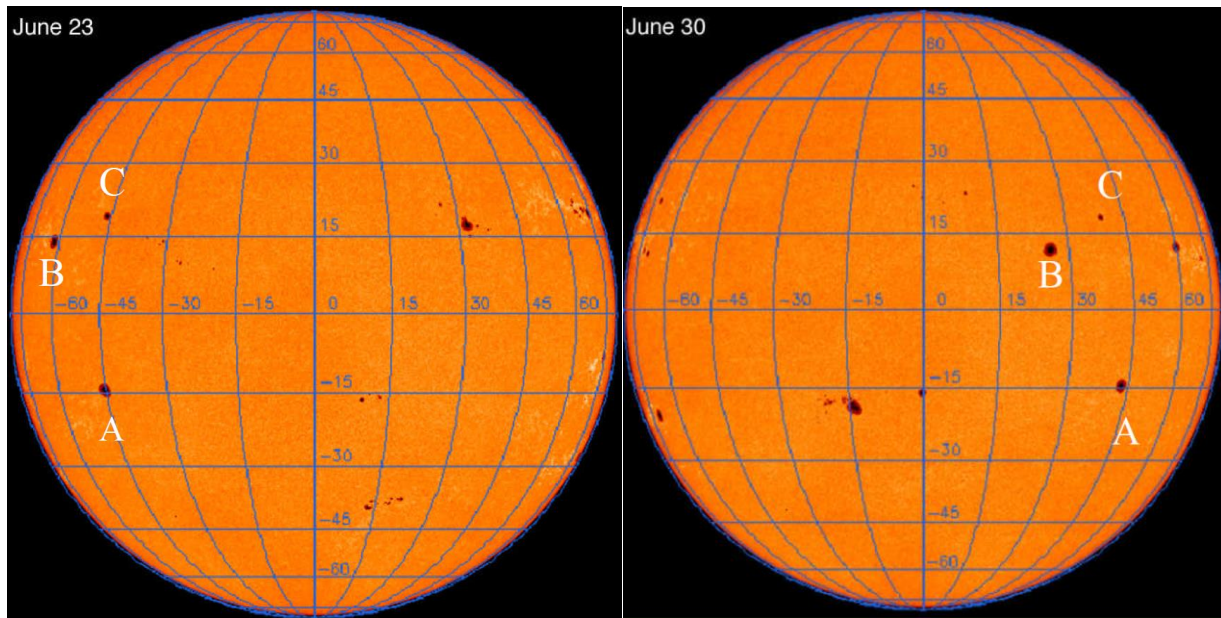
2. Refraction is when light changes \_\_\_\_\_

3. Light diffracts when it passes \_\_\_\_\_

4. Interference is \_\_\_\_\_

5. Measure your hair width:

- a. Measure the distance ( $y_m$ ) from the bright center to the first dark gap in mm: \_\_\_\_\_
- b. Laser wavelength  $\lambda$ : \_\_\_\_\_ (units?)
- c. How far (D) is the laser from the wall? \_\_\_\_\_ (units?)
- d. Calculate the width of your hair (d) using:  $d = \lambda m D / y_m$  (box your answer):



6. Using the images above, how long does it take the sun to rotate once on its axis?

