

Name: \_\_\_\_\_

Period: \_\_\_\_\_

Date: \_\_\_\_\_

### Section 3: *Detecting Light* Fill-In Notes

Astronomy

#### Section 3: Detecting Light

##### Visible Light

- ▶ Once \_\_\_\_\_ gets collected, it must be \_\_\_\_\_ and \_\_\_\_\_
  - Old days: an \_\_\_\_\_ detected the light that was collected through the \_\_\_\_\_ piece of the \_\_\_\_\_ and recorded the light by \_\_\_\_\_ the image that was seen through the \_\_\_\_\_
- ▶ Many \_\_\_\_\_ objects are too \_\_\_\_\_ and too \_\_\_\_\_ for us to see with our own \_\_\_\_\_
  - At \_\_\_\_\_, many of the \_\_\_\_\_ objects \_\_\_\_\_ just a few \_\_\_\_\_ of light by the time they \_\_\_\_\_ us
- ▶ If you were to look at a near \_\_\_\_\_ through a large \_\_\_\_\_ scope, it may take several \_\_\_\_\_ of \_\_\_\_\_ capture to assemble a \_\_\_\_\_
- ▶ To see \_\_\_\_\_ objects, \_\_\_\_\_ use different kinds of \_\_\_\_\_ that are able to \_\_\_\_\_ light in some way to \_\_\_\_\_ images
  - Can be done both \_\_\_\_\_ with \_\_\_\_\_ and \_\_\_\_\_ with \_\_\_\_\_ like ones in video \_\_\_\_\_
- ▶ From the late \_\_\_\_\_ to the \_\_\_\_\_, astronomers usually used \_\_\_\_\_ film to \_\_\_\_\_ the light from the \_\_\_\_\_ they were \_\_\_\_\_
  - \_\_\_\_\_ absorbs \_\_\_\_\_ that cause a \_\_\_\_\_ change, making the film \_\_\_\_\_ where the light \_\_\_\_\_ and thus creating the \_\_\_\_\_
  - \_\_\_\_\_ very \_\_\_\_\_ though... it took \_\_\_\_\_ to capture and even longer to \_\_\_\_\_
- ▶ Today: almost all \_\_\_\_\_ detectors
- ▶ \_\_\_\_\_ – \_\_\_\_\_ (CCD) – \_\_\_\_\_ detector that can make \_\_\_\_\_ virtually \_\_\_\_\_ from \_\_\_\_\_ in their \_\_\_\_\_ and with a \_\_\_\_\_ to \_\_\_\_\_ light
  - Approximately \_\_\_\_\_ greater
  - The \_\_\_\_\_ coming in \_\_\_\_\_ a \_\_\_\_\_ surface which allows \_\_\_\_\_ to move within the \_\_\_\_\_
  - The \_\_\_\_\_ is divided into a bunch of small \_\_\_\_\_ called \_\_\_\_\_ where the \_\_\_\_\_ are stored
- ▶ The number of \_\_\_\_\_ in each \_\_\_\_\_ is \_\_\_\_\_ to the number of \_\_\_\_\_ hitting it
- ▶ The \_\_\_\_\_ is then \_\_\_\_\_ to computer that \_\_\_\_\_ the \_\_\_\_\_, counting the number of \_\_\_\_\_ in each \_\_\_\_\_ and generating a \_\_\_\_\_
  - Similar to how \_\_\_\_\_ pixels are small \_\_\_\_\_ all put together to create the \_\_\_\_\_ you see on the \_\_\_\_\_
- ▶ \_\_\_\_\_ are extremely \_\_\_\_\_ and can record \_\_\_\_\_ % of the \_\_\_\_\_ striking them, allowing \_\_\_\_\_ to record images much \_\_\_\_\_ than with \_\_\_\_\_

- ▶ Because they are \_\_\_\_\_ images, they can be \_\_\_\_\_ by \_\_\_\_\_ them, \_\_\_\_\_ extraneous light, and \_\_\_\_\_ contrast to help produce a great image

#### Observing at Nonvisible Wavelengths

- ▶ The \_\_\_\_\_ light we see is a small \_\_\_\_\_ of the full \_\_\_\_\_
- ▶ Many \_\_\_\_\_ objects give off \_\_\_\_\_ we can't see because it doesn't fall within the \_\_\_\_\_ light
  - Ex: \_\_\_\_\_ gas \_\_\_\_\_ emit (give off) \_\_\_\_\_ waves so we use \_\_\_\_\_ detectors to compile those images
- ▶ \_\_\_\_\_ telescopes are \_\_\_\_\_ receivers with large \_\_\_\_\_ (just like the \_\_\_\_\_ ones) that \_\_\_\_\_ radio waves
  - These can also be \_\_\_\_\_ into \_\_\_\_\_ that cross over entire \_\_\_\_\_!
    - This is because the radio waves are so \_\_\_\_\_
- ▶ Many different \_\_\_\_\_ objects radiate \_\_\_\_\_ energy
- ▶ This is \_\_\_\_\_ ...
  - \_\_\_\_\_ can use \_\_\_\_\_ telescopes, but the telescopes themselves have the \_\_\_\_\_ to give off \_\_\_\_\_ energy
  - These \_\_\_\_\_ have to be in really low \_\_\_\_\_ and away from any \_\_\_\_\_ to not allow that \_\_\_\_\_ to collect around it
- ▶ \_\_\_\_\_ are even tougher...
  - \_\_\_\_\_ are easily absorbed by \_\_\_\_\_ if they hit directly
  - If they hit at a \_\_\_\_\_, \_\_\_\_\_ angle, they can be \_\_\_\_\_
    - Very similar to how a \_\_\_\_\_ can skip on \_\_\_\_\_
- ▶ \_\_\_\_\_ scopes are \_\_\_\_\_ funnels that gradually direct the \_\_\_\_\_ towards the \_\_\_\_\_
- ▶ Because we can't see \_\_\_\_\_ and \_\_\_\_\_, we use false \_\_\_\_\_ images to form \_\_\_\_\_ with these
- ▶ The \_\_\_\_\_ represent different amounts of \_\_\_\_\_
  - It's translated to "color"
- ▶ Most of the \_\_\_\_\_ we can't see have a hard time getting through Earth's \_\_\_\_\_
- ▶ Best option: put them up in \_\_\_\_\_!