



Drexel-SDP GK-12 LESSON

- Lesson Title and Identifier:

Title: Astronomy and Me: ID the Star Gas

Identifier: 3.4

- Module: Astronomy
- Subject Area (Unit): Astronomy
- Concept:
Vocabulary

- Objectives:

Allow the students to analyze and determine the components of a star based on known emission spectrum information.

- PA Academic Standards:

Science 3.1.7 Unifying Themes
3.2.7 Inquiry and Design

Math 2.3 Measurement and Estimation
2.9 Geometry

- Grade Level: 6th
- Setting/Group Size: 30 students
- Duration/Time Required: 1 class period
- Materials List (include safety equipment if applicable)

Paper

Star Packet (A set of transparencies bound together. Each transparency has a emission spectrum for a gas.)

Spectrum Examples (A sheet containing all the possible gases that could be in a star packet.)

Note: Emission Spectrum designs can be found in appended files Attachments A, B, C, and D. They can be printed onto transparencies as needed. If transparencies are not available, copy the desired spectrums and superimpose them together.

- Methods and Procedure:

Step 1: Review the relationship between color and frequency. Link this to the emission spectrum of gases. Also link the color given off by stars to temperature.

Step 2: Introduce the activity. Each team will receive a star packet, a sheet of white paper, and a set of known gases. Place the star packet over the white sheet to improve the visibility of the lines.

Step 3: Have the students determine which 3 gases are present in their star packet. (To increase the level of difficulty, do not let them know how many gases are present.)

Step 4: Have the students estimate the temperature of their “star” based on the colors.

Step 5: Relate this process to other areas in science. (Ex. The TV show CSI depicts finding what substances are using a gas chromatography.) What is the biggest difference between this process and CSI. (Astronomers rely on the light given off by a star. We can’t take any physical samples to check. At least not yet.)

Step 6: Have the student teams design their own stars and try to stump the other teams.

- Extended Activities:
- Assessment

Students will be evaluated on a scale from 0 to 4 on:

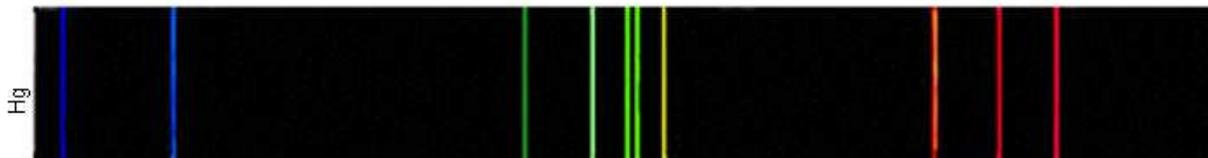
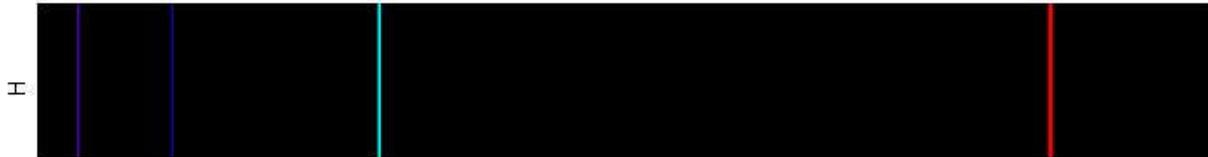
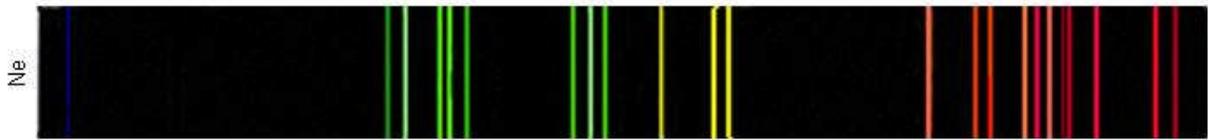
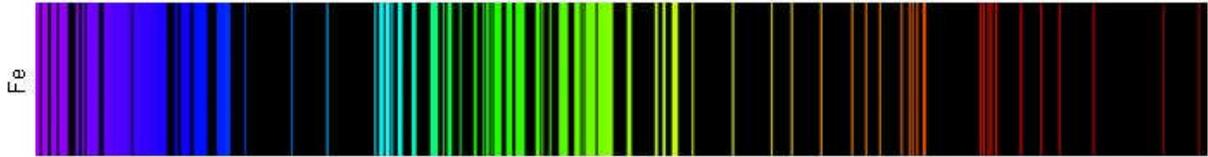
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Participation	Task Completion	Presentation	Quality of Analysis

- Keywords: spectrum, emission, star, gas
- Authors

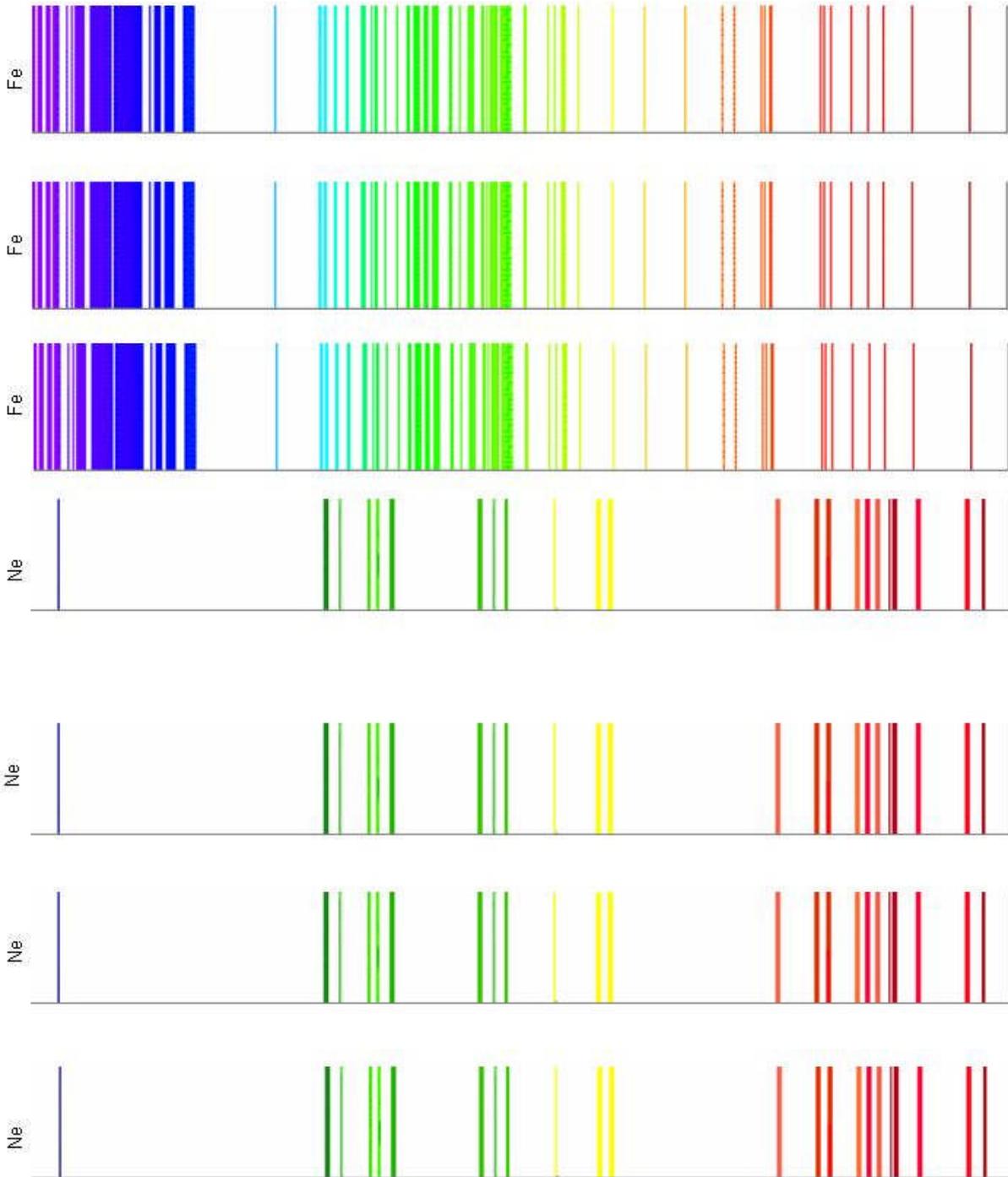
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Attachment A

Emission Spectrums



Attachment B



Attachment C



Attachment D

