

**MCDONALD OBSERVATORY STUDENT FIELD EXPERIENCE PROGRAM**  
**POST VISIT ACTIVITIES**

**DECODING STARLIGHT: CONNECTING TO SCHOOL SCIENCE**

Concept Mapping

**PURPOSE**

Student encountered many different ideas during their exploration of the Decoding Starlight Exhibit. In the following activities, students will apply their exhibit experience to complete a concept map to help them organize their new knowledge and relate it to what they already know.

**MATERIALS**

For students: Concept map #1, Extending the Concept Map, Student Exhibit Guide  
For teachers: Expert Map, Rubric

**SCIENCE TEKS**

IPC 5 Effects of waves: (B) identify wave interactions

IPC 7 Relationship between properties of matter and its components: (C) identify constituents of stars using spectral analysis techniques

Phy 9 Simple example of quantum physics: (B) explain line spectra

Ast 6 Life cycle of stars: (B) identify characteristics of stars using spectral analysis

**NSES**

Grades 9-12 Physical Science: structure and properties of matter, interaction of energy and matter

**ACTIVITY**

*Engage:* Ask students to review their Student Exhibit Guide and recall a memorable moment in the Decoding Starlight exhibit hall – what stands out in their minds? Ask students to share their experiences with the class.

*Explore:* Working in small groups, students complete “Concept Map #1”.

*Explain:* Students explain the relationships between concepts, and the rules for making a concept map. Encourage them to recall their Decoding Starlight exhibit experience as they explain the relationships. For instance, students saw a live solar spectrum. They could see the Sun’s light come into the exhibit hall, pass through the spectrograph, and spread across the wall as a giant spectrum. This experience can help them explain the chain of concepts and relationships starting with “**Energy**” and ending at “Spectrum”.

*Elaborate / Extend:* Students add concepts and relationships to “Concept Map #1” in “Extending the Concept Map”. In addition, student can make a new map.

*Evaluate:* Use the “Expert Map” and rubric as a student concept map assessment guide.