Harvard Classification

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Subjects(s): Physics

Topic or Unit of Study: Stars

Grade/Level: 9th grade

Time Allotment: 1 class period – 50 minutes

Objective: Learn about the Harvard classification scheme.

Summary: This lesson will focus on students learning about and understanding the Harvard classification scheme. More details will be given on digital spectrographs and reading spectrographs.

STANDARDS & ASSESSMENT

Standards:

12.F.4a Explain theories, past and present, for changes observed in the universe

12.F.4b Describe and compare the chemical and physical characteristics of galaxies and objects within galaxies

Assessment/Rubrics: Harvard Classification Notes

IMPLEMENTATION

Learning Context: This is the 4th lesson in the unit and happens on the 5th day of the unit. Students will already know the different properties of stars that can be measured and the specific properties we will be interested in – temperature and absorption lines. The Harvard classification scheme which is based solely on temperature will be introduced. This lesson will also dive into digital spectrographs – what they mean and how to read them. The next lesson will deal with how to use the spectrograph of a star to find the temperature of that star.

Procedure:

- Ask students if they have any questions about stars (how the form, how they burn)
  - Take some time to discuss anything the students do not understand thus far
- Pass out Harvard Classification Notes
- Present Harvard Classification PowerPoint presentation
  - Have students fill out Notes sheet during presentation. Teacher should elaborate on the topics covered by the Notes sheet
- Answer any questions students still might have about the reading
- Mnemonic contest with OBAFGKM for homework
  - The class will vote on a winner first thing tomorrow

Differentiated Instruction: Students with hearing or visual impairments will be placed in the front of the classroom, enabling them to hear and see the teacher's instruction better. AD/ADHD students will be placed by the teacher's desk or an easily accessible area so the teacher can make sure these students are staying on task. LD students will receive differentiated instruction on a case by case basis. The differentiated instruction will depend on what learning disability the student has and how that specific student will cope with the presented lesson.

MATERIALS AND RESOURCES

Instructional Materials:

- Harvard Classification PowerPoint
- Method for showing the Harvard Classification PowerPoint presentation
- Harvard Classification Notes sheet