

# Assessment Rubric

With an additive rubric, students have to learn more content in greater depth to achieve higher levels. Teachers should introduce the rubric to students before the activities begin and encourage students to achieve to their highest potential. Teachers use the rubrics at the end of the unit to assess whether students have learned the science content.

	1	2	3 (Level 2+)	4 (Level 3+)	5 (Level 4+)
<b>Science Content: Activity 1 Magnetic Fields on the Surface of the Sun</b>	* Level 2 tasks attempted, but not completed or mastered	*Students are able to set up the magnets on a piece of paper and map the magnetic field lines around either end of the pair of magnets. *Students, through successful completion of this activity, demonstrate their understanding of magnetic field lines around a pair of magnets.	*Using what they know about magnetic field lines from magnets, students are able to predict the magnetic field lines around two Sunspots on Worksheet 4.1. *Students, through the successful completion of Worksheet 4.1, are able to make the connection between magnetic field lines around magnets and those around two Sunspots on the Sun.	*Students take notes on the Sunspots lecture. *Students are able to answer 100% of the questions presented on the graphic organizer for the Sunspots lecture. *Students are able to answer the questions on Worksheet 4.2 with 80-94% accuracy. *Students, through successful completion of Worksheet 4.2, are able to demonstrate their knowledge of the basics of the Sun, solar flares, Sunspots, and magnetism of the Sun.	*Students are able to answer the questions on the Worksheet 4.2 with 95% accuracy and above. *Student fully demonstrates comprehension of the magnetic fields on the surface of the Sun and the cause for magnetism on the Sun.
<b>Collaborative Worker</b>	Participates but does not successfully complete one or more requirements of Level 2	Arrives on time with materials. Shows respect for others; cares for equipment and resources.	Stays focused on assigned task and helps others do the same. Shares work equally.	Facilitates the participation of all in the group. Tutors and/or supports other students.	Takes all group roles with equal skill. Assists others as they learn to do the same.

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<b>Science Content: Activity 2 Magnetic Energy and the Cause of Solar Flares</b>	* Level 2 tasks attempted, but not completed or mastered	*Students successfully complete activities 4 and 5 from Session 2 in Exploring Magnetism. *Students, through successful completion of Activity 4 and 5, know that electrical currents create magnetic fields and that moving magnets create electrical fields that push on charges and create a current. *Student, through successful completion of Activity 4 and 5, know that moving electric fields create magnetic fields and that moving magnetic fields create electric fields.	*Students understand, primarily through discussion, that energy is not being created in the magnet, but transformed from one form of energy to another. *Students know the differences between kinetic and potential energy and are able to demonstrate an example of it in their world.	*Students read the Solar Flares essay and complete Worksheet 4.3 with 80-94% accuracy. *Students, through successful completion of Worksheet 4.3, are able to demonstrate that they know the basic concepts of a magnetic field, coronal mass ejection, light, nuclear fusion, the Sun's spin, solar flares, convection, kinetic energy, Sun's mass, gravity, and heat.	*Students read the Solar Flares essay and complete Worksheet 4.3 with 95% accuracy and above. *Student fully demonstrates comprehension of magnetic energy and the cause of solar flares.
<b>Collaborative Worker</b>	Participates but does not successfully complete one or more requirements of Level 2	Arrives on time with materials. Shows respect for others; cares for equipment and resources.	Stays focused on assigned task and helps others do the same. Shares work equally.	Facilitates the participation of all in the group. Tutors and/or supports other students.	Takes all group roles with equal skill. Assists others as they learn to do the same.

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<b>Science Content:</b> <b>Activity 3</b> <b>Measuring the Speed of an Ejected Ball of Plasma</b>	* Level 2 tasks attempted, but not completed or mastered	*Students are able to identify the RHESSI images as solar flares. *From the RHESSI images, Students are able to identify the coronal loop and the blob of plasma separating from it.	*Students, through successful completion of Worksheet 4.4, are able to predict the magnetic field lines of a solar flare.	*Students are able to identify the footprints of a coronal loop from Worksheet 4.5. *Students are able to identify the solar flares marked by an "X" from Worksheet 4.5. *Students are able to identify the circle marked on the images as the midpoint between the footprints from Worksheet 4.5. *Students are able to determine the location of the brightest spot in the coronal x-ray source and draw cross hairs through that spot using a ruler and determine the coordinates from Worksheet 4.5. *Students are able to determine the speed of the blob using at least 1 of 2 methods taught by the instructor. *Students complete Worksheet 4.5 with at least 80-94% accuracy.	*Students complete Worksheet 4.5 with at least 95% accuracy and above. *Students, through successfully completion of Worksheet 4.6, demonstrate that they can determine the kinetic energy of a blob that has that has been ejected by a solar flare. *Students fully demonstrate the ability to calculate the speed and kinetic energy of a blob that has been ejected by a solar flare.
<b>Collaborative Worker</b>	Participates but does not successfully complete one or more requirements of Level 2	Arrives on time with materials. Shows respect for others; cares for equipment and resources.	Stays focused on assigned task and helps others do the same. Shares work equally.	Facilitates the participation of all in the group. Tutors and/or supports other students.	Takes all group roles with equal skill. Assists others as they learn to do the same.

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<b>Science Content: Activity 4 Science Conference</b>	* Level 2 tasks attempted, but not completed or mastered	*Students are able to decide what aspect of their research to report on. *Students are able to follow the guidelines for creating a science conference abstract and submit an abstract of at most 250 words.	*Students are able to follow the guidelines for the science conference presentations. *Students submit a poster that meets all the requirements outlined in the guidelines for the science conference presentations.	*Students are able to orally present their poster and information to the class. *Students demonstrate, through information on the poster and oral presentation, <b>some understanding</b> of the concepts surrounding magnetism in solar flares.	*Students demonstrate, through information on the poster and oral presentation, that they <b>fully understand</b> the concepts surrounding magnetism in solar flares.
<b>Collaborative Worker</b>	Participates but does not successfully complete one or more requirements of Level 2	Arrives on time with materials. Shows respect for others; cares for equipment and resources.	Stays focused on assigned task and helps others do the same. Shares work equally.	Facilitates the participation of all in the group. Tutors and/or supports other students.	Takes all group roles with equal skill. Assists others as they learn to do the same.

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<b>Science Content: Activity 4 Poster Presentation</b>	* Level 2 tasks attempted, but not completed or mastered	*Students include all of the information outlined on the guidelines for their science conference poster presentation.	*Students include detailed text that describes the bold graphs, photographs, figures, and tables. *Information on the poster board is at least 80% accurate. *Students include some important information that demonstrates they <b>know basic concepts</b> learned in Session 4.	*Students include lots of color and detail on their poster. *Students organize the information on the poster board in a creative and logical manner. *Information on the poster board is at least 90% accurate. *Students include the majority of important information with enough detail to demonstrate they <b>somewhat understand the concepts</b> taught in Session 4.	*Students go above and beyond the expectations of the poster project and include vivid detail and text. *Information on the poster board is 100% accurate and encourages dialogue from those students evaluating the poster. *Students demonstrate that they <b>fully understand all of the concepts</b> of magnetism in solar flares.
<b>Collaborative Worker</b>	Participates but does not successfully complete one or more requirements of Level 2	Arrives on time with materials. Shows respect for others; cares for equipment and resources.	Stays focused on assigned task and helps others do the same. Shares work equally.	Facilitates the participation of all in the group. Tutors and/or supports other students.	Takes all group roles with equal skill. Assists others as they learn to do the same.

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<b>Science Content: Activity 4 Oral Presentation</b>	* Level 2 tasks attempted, but not completed or mastered	* Students include all of the information outlined on the guidelines in their science conference oral presentation.	*Students include bold visuals that support the information they are presenting to the class. *Students demonstrate that they have practiced their presentation and are <b>fairly comfortable</b> in the delivery of their presentation. *All students involved in the science group participate in the oral presentation. *Students include some important information that demonstrates they <b>know basic concepts</b> learned in Session 4.	*Students demonstrate that they have practiced their presentation and are <b>very comfortable</b> in the delivery of their presentation. *Students project their voices so that all audience members can here the oral presentation and make good eye contact with the audience. *Students are able to answer questions asked by the audience with at least 80-94% accuracy. *Students include the majority of important information with enough detail to demonstrate they <b>somewhat understand the concepts</b> taught in Session 4.	*Students demonstrate that they have practiced their presentation and are <b>are confident</b> in the delivery of their presentation. *Students go above and beyond the expectations of the oral presentation and include vivid detail and oral description of concepts. *Students are able to answer questions asked by the audience with at least 95% accuracy and above. *Students demonstrate that they <b>fully understand all of the concepts</b> of magnetism in solar flares.
<b>Collaborative Worker</b>	Participates but does not successfully complete one or more requirements of Level 2	Arrives on time with materials. Shows respect for others; cares for equipment and resources.	Stays focused on assigned task and helps others do the same. Shares work equally.	Facilitates the participation of all in the group. Tutors and/or supports other students.	Takes all group roles with equal skill. Assists others as they learn to do the same.