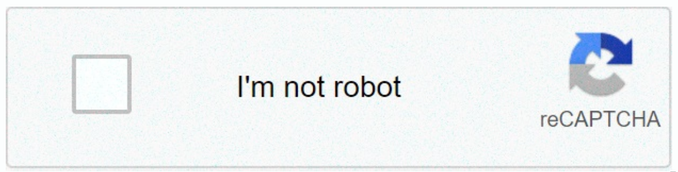

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Reflection refraction absorption worksheet

Thank you for your participation! The match card for folding and reflection is from the research of the light and energy unit. This project explains and demonstrates the folding, reflection and absorption of light vessels. Free download Below the folding and reflection matchcard goal: Describe the folding, reflection and absorption of light. When light hits an object, it is either absorbed (it is considered a colored object), reflected (bent) or reflected (bounces off the surface.) MatchCard: Download below. Project: Observe light that reflects, reflects, or absorbs into objects. This is matchcard #2 and energy unit research. More information about MatchCard Science can be found below. Bouncing, bending, colorful light bending from the bending of light is a bending of light. Here is a common image that shows the phenomenon: Use transparent glass. Fill it with 3/4 water. Put a straw, pencil, knife or fork in the water. Viewed from the page, it appears that the object is bent. Explanation: Light waves travel at different speeds at different speeds. Light waves go more slowly through water than through the air, giving the illusion that the object is bent. The reflection of light reflection is the bounce of light vessels from the surface of an object. Use a flashlight and mirror. Shine the light into the mirror and notice that the ray of light is reflected off. Change the angle of light so that it hits the surface at an angle of 45%. Note the angle at which the light is reflected off. Draw a diagram showing the angles of light. Conveve and concave Use a metal spoon to discuss the conve (curve outwards) and concave (curved inward) surface. Make the student mark his reflection in the spoon. What surface makes the picture look bigger? Smaller? Draw a simple object like a pencil as it would appear in a conveve and concave shape. Here's an exagered change: Check the bottom of the tank for a concave base (such as a shaving cream.) It doesn't work with a flat jar like a soup jar. The reflection is upside down. Hunt sits in your room and notices all the surfaces from which the light reflects (shiny surfaces.) Keep track of examples of reflection that the student notes in their daily lives for a month. Examples: reflection strips at night, eyes of cats, reflection in the sheep. When light hits an anti-reflective surface, the object absorbs the light waves. However, light waves of the same colour as the object are not absorbed. Instead, those light waves bounce off the surface, transmitted to the human eye, and are interpreted as the color of the object. Go to the closet or put it in a black room with no windows. It should be dark enough for you not to see the artifacts. Slowly let a little light in, either by opening a crack at the door or by turning on a flashlight with a radius almost completely covered. You should start seeing the outline of objects, but not recognize their color. Slowly get more light into the room to make the objects clearer. Add a little bit at a time to the amount of light in the room. Note when the color of objects is recognizable. To add to the challenge of this activity, you may want multiple items, such as blocks or marbles, that come in different colors. Otherwise, the child may easily recognize the color of items that are already familiar. This first action is a prelude to the next two requiring a wall mirror. Stand face to face with another person. They look into your eyes and you look into their heads. Move your eyes slowly for about an inch so you stare at their foreheads. Move your eyes down a little further. Then move them down so you can look them in the eye. They should say Lock when they know you're looking them in the eye. You can feel and see your eyes meet someone else. Look at the mirror image of yourself. Note that you can lock your eyes with your own reflection. You can even lock your eyes with yourself in the mirror if you wear sunglasses dark enough so you can't see the eyes. Stand with your friend and look in the wall mirror. Note that you can lock your eyes through the mirror even if you are not facing each other. Your vision of dead locks where reflections meet, and not really on the surface of mirrors. Top of this page In a hands-on way, students explore the properties of light absorption, reflection, transmission, and folding through different test stations in the classroom. To understand absorption, reflection and transmission, they shine flashlights on several items delivered. To understand the fold, students create indoor rainbows. Understanding the basic characteristics of light is essential for the design of an invisible laser safety system, which is the continuous goal of this unit. This engineering curriculum is in line with the next generation of science standards (NGSS). When designing laser-based safety systems, engineers consider the effects of perenninent properties of electromagnetic radiation. The concepts of wave absorption and transmission are central to the design of laser systems and are additional applications in biomedical design. In X-ray imaging, different types of tissue lead to various passings that can be recorded to describe bones on an X-ray film. Engineers must also be aware of safety concerns; even small doses of high-mineral radiation can be dangerous, especially in the case of gamma radiation. In radiotherapy for cancer, the management of high-five radiation may be useful, but it must be carefully managed. Students consider the possible real-world uses of different types of radiation in questions 2 and 5–9 of post-activity assessment. After this activity, the students must: Thu: Explain the characteristics of the light as related to the safety systems. Describe which objects reflect, absorb, or emit light. Explain the folds of light to rainbows that have occurred in nature. Identify multiple radiation applications for science and technology today. This activity also meets the following Tennessee Foundations of Technology's educational technology content standards: 2.0, 3.0, 4.0, 5.0, 6.0, 7.0 and 8.0. This activity also meets the following National Science Education Standards (NSES): A, B, C, D, E, F; see NGSS Performance Expectation MS-PS4-2. Develop and use the model to describe that waves are reflected, absorbed or transmitted through different materials. (Grades 6 through 8) Do you agree with this line? Thank you for your feedback! Click here to view other curricula related to this performance expectations This activity focuses on the following NGSS 3-D learning aspects: Science & Engineering Practices Disciplinary Core Ideas Crosscutting Concepts Develop and use a template to describe phenomena. Policy agreement: Thank you for your feedback! When light shines on an object, it is reflected, absorbed or transmitted through the object according to the material and light frequency (color) of the object. Policy agreement: Thank you for your feedback! The light path can be traced as straight lines, except for various transparent materials (e.g. air and water, air and glass) where the light path bends. Policy agreement: Thank you for your feedback! The light wave model is useful for explaining brightness, color and frequency-dependent light bending on a beaded surface of the media. Policy agreement: Thank you for your feedback! However, since light can pass through space, it cannot be a wave of matter, such as sound or water waves. Policy agreement: Thank you for your feedback! Structures can be designed to serve certain functions by taking into account the properties of different materials and how materials can be shaped and used. Policy agreement: Thank you for your feedback! The student develops an understanding of the relationships between technologies and the links between technology and other fields. (Grades K - 12) More information View targeted curriculum Do you agree with this policy? Thank you for your feedback! Information from other research areas has a direct impact on the development of technological products and systems. (Grades 6 through 8) More information View targeted curriculum Do you agree with this policy? Thank you for your feedback! Suggest a alignment not listed above Station 1: Making Rainbows (Consider making several of these stations depending on the size of the class.) glass watch jar filled with water small, compact mirror LED flashlight Position 2: aluminum foil plastic wrapping mirror LED flashlight Position 3: or hand cheekfoot LED flashlight Position 4: tissue paper, different colors notebook paper LED flashlight For teacher use: prints Electromagnetic spectrum Visual assistance To study the properties of light! Spreadsheet (pdf) Studying the properties of light! Spreadsheet (doc) What have you learned today? Summary (pdf) What have you learned today? Handout (doc) Visit [www.teachengineering.org/activities/view/van_troll_lesson02_activity1] to print or download. Basic understanding of light properties according to the characteristics of lesson 2 Learning Light. Today's action brings a bit of fun and excitement recently we learn about concepts. The purpose of today's hands-on study is to strengthen your understanding of how different materials react to a ray of light. We study the absorption, transmission, reflection and folding of light. If you want to explore the folding of the fold, you create your own rainbow in the classroom. For the action, you'll spend 15 minutes on each of the four stations set up throughout the classroom, answering questions and storing your predictions and observations on a spreadsheet. By understanding the features explored in this activity and understanding lasers obtained through a future lesson and activity, you can design your invisible laser safety system to protect our mummified troll. Background This activity provides students with a practical way to study the light properties of reflection, absorption, transmission and folding. Before the activity collects materials and makes copies of the attached light features! A spreadsheet and what have you learned today? Summary, one per student. Tip: After collecting the materials for this activity with the students, first go through the activity yourself. This allows you to fill in the results of a spreadsheet chart based on the exact material and light source (flashlight) used by students, basically creating your own answer key. Set up drives as described in the Material List section. Set up station in the darkest area of 1 room. Depending on the class size, more than one drive 1 can be helpful. Share the class with groups of three students from each position and study each position. Assign each group to the starting drive. When students share spreadsheets. Position 1: Guide groups of students to follow the instructions on their spreadsheets and save both their predictions and observations. Position 2-4: Guide groups of students to fill in spreadsheets by first predicting whether light is absorbed, transmitted, or reflected, as well as the color of the resulting light. Then try to find the results and save their observations. Lead a class discussion where students share and compare their results and conclusions. The evaluation section describes the typical results. Finally, students complete the summary individually. absorpance: The ratio of the amount of radiation absorbed by the surface to the amount of radiation it emits. absorption: Removal of energy or particles from the beam to its intermediate area through which the beam passes. opaque: Opaque light, resulting in complete reflection. reflection: Ratio of reflective radiation intensity to radiation on the surface. reflection: Return of light, heat or sound after impact of the surface. folds: Change of direction of the radial radii of light, heat or sound when passing from one medium to another, where its wavelength is different. pass: The ratio of radiation transmitted from and rising from the body to its total radiation case. Also corresponds to one minus absorpance. Transparent: It has a feature to transmit rays of light through its matter. Activity Embedded Assessment Worksheet & Discussion: When students go through stations, let them complete the spreadsheet chart with predictions and results. In class discussion, students share and compare their results and conclusions. The results vary depending on accurate materials and light sources, but are usually expected: reflective materials such as aluminium foil and mirror, reflective materials reflect light solid, transparent materials such as wax paper, body parts, notebook paper and cardboard paper, to absorb light materials with varying degrees of transparency, such as plastic hinged wrapping and tissue paper. , to transmit light, lighter colored tissue paper is likely to emit more light than darker colored tissue paper materials, such as cheeks and notebook paper, to emit light, although is likely to absorb most of the light post-activity assessment final summary: Do students need to return to their tables and perform individually what you've learned today? Handout. The assessment includes both content issues and app issues where students consider applications for designing a security system. Given our goal of protecting our mummified troll, how could the absorption, reflection or transmission of light apply? If we show the light forward and you walk in front of it, it suddenly disappears. What's going on here? How can we use this concept to protect trolls? What kind of sensor would you need to detect the presence of a burglar? Where would the light from the flashlight fall on the electromagnetic spectrum? What happens if we use different energy on the electromagnetic spectrum? What else do we have to take into account with regard to safety restrictions? Guide students with unanswered questions to explore the Internet for additional answers. Lend flashlights to students interested in studying the frying of laser light on other objects at home. that students show their families the inner rainbow described in the inner arc of Weather Wiz Kids at: Lower grades showcase group chats exploring objects as a class. Also perform the rainbow indoor demonstration as a class instead of small groups. Higher grades, ask more questions about laser safety systems and what types of lasers students suspect are appropriate. In further research, also ask questions about the application of laser technology to medicine. Dictionary.com. Lexico Publishing Group, LLC. December 29, 2008. (Source of vocabulary definitions with some customization) Browse the NGSS Engineering-line physics curriculum center and look for more physics and physical science curriculum with technology. Last Modified: 5.11.2020 2020

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