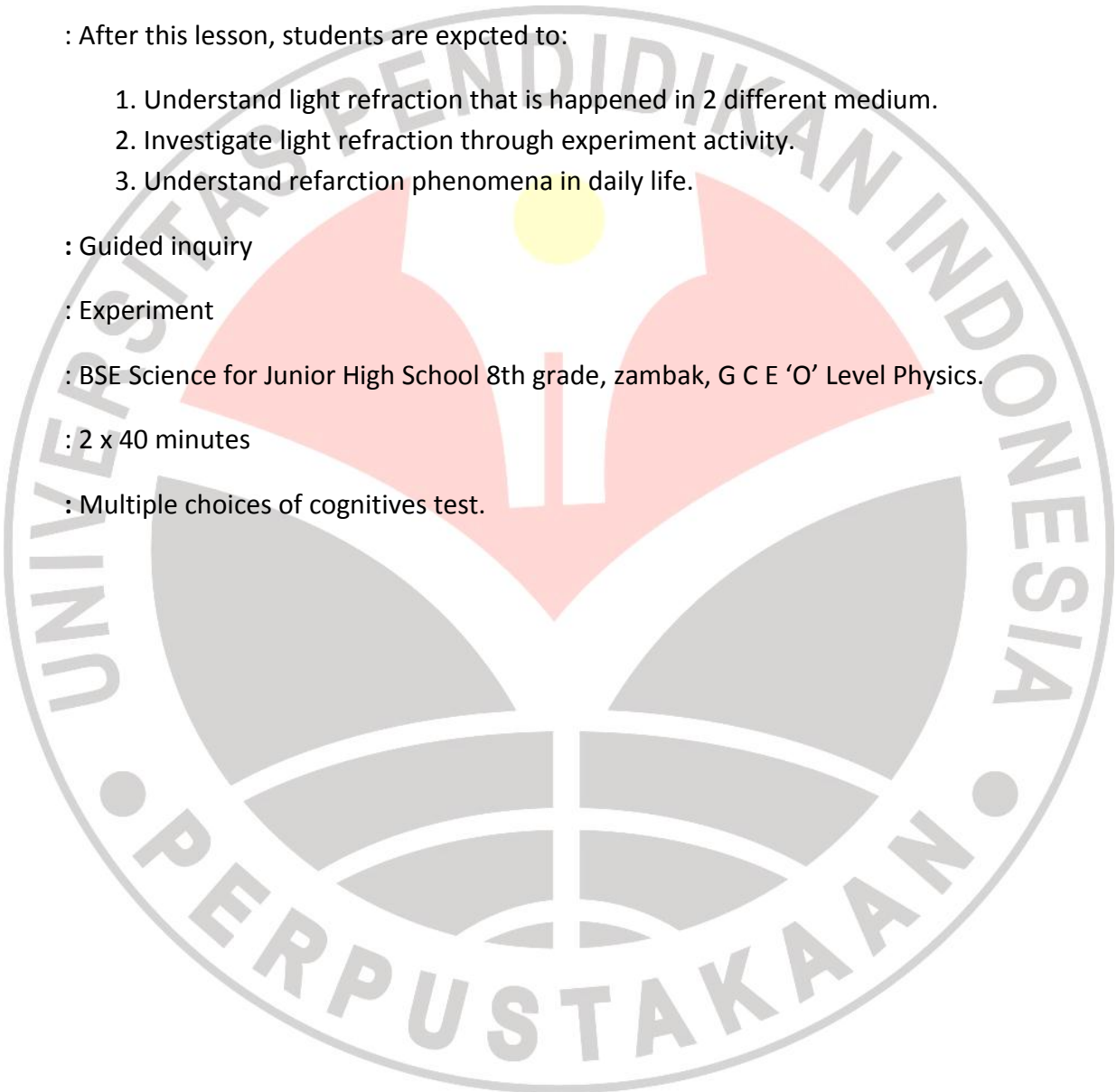


## LESSON PLAN I

<b>Teacher</b>	: Annisa Nurramadhani (0902175)
<b>School</b>	: Junior High School (Pribadi Bilingual Boarding School)
<b>Subject</b>	: Science (physics)
<b>Class/Semester</b>	: VIII / 2nd
<b>Competence Standard</b>	: Understand the concept and application about waves and optics in technology as daily life product.
<b>Basic competences</b>	: Investigate light characteristic and its relationship with daily life in mirror and lens.
<b>Indicator</b>	: <ol style="list-style-type: none"><li>1. Explain refraction phenomena.</li><li>2. Gives an example of refraction phenomena.</li><li>3. Observe beam of light when refract in 2 different medium.</li><li>4. Define refraction phenomena.</li><li>5. Classify the beam of light characteristic which refracts.</li><li>6. Stated refraction law based on beam of light travels through 2 medium.</li><li>7. Apply refraction law in daily physics refraction phenomena.</li><li>8. Apply refraction law in simple cases of physics about refraction.</li></ol>

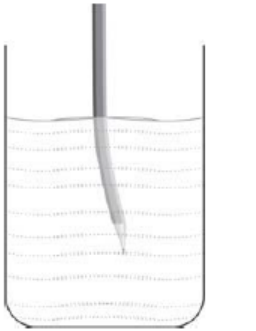


<b>Objective</b>	: After this lesson, students are expected to: <ol style="list-style-type: none"><li>1. Understand light refraction that is happened in 2 different medium.</li><li>2. Investigate light refraction through experiment activity.</li><li>3. Understand refarction phenomena in daily life.</li></ol>
<b>Model</b>	: Guided inquiry
<b>Method</b>	: Experiment
<b>Source of Books</b>	: BSE Science for Junior High School 8th grade, zambak, G C E 'O' Level Physics.
<b>Time</b>	: 2 x 40 minutes
<b>Evaluation</b>	: Multiple choices of cognitives test.

Annisa Nurramadhani, 2013

GENDER DIFFERENCES AND JUNIOR HIGH SCHOOL STUDENTS CONCEPTUAL MASTERY BY USING VIRTUAL LABORATORY MEDIA ON OPTIC TOPICS

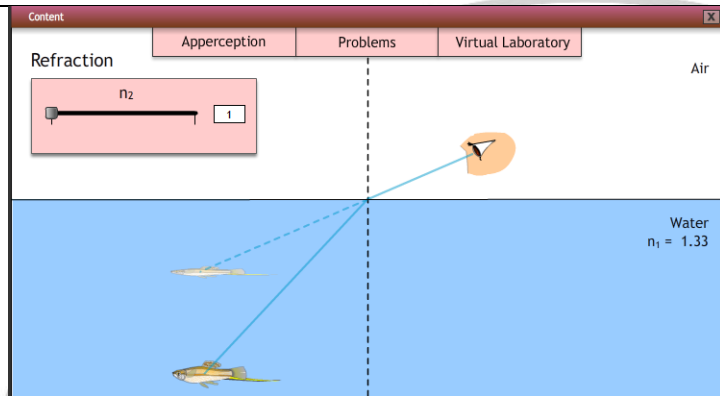
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Indicator	Teacher Activity	Students Activity	time
	<p><b>INITIAL ACTIVITY:</b></p> <ul style="list-style-type: none"> <li>• Teacher checks students attendace list.</li> <li>• Teacher gives pretest to know preliminary knowledge of students before learning.</li> </ul> <p><b>Observation</b></p> <p><b>a. Apperception</b></p> <p>Teacher asks to the students:</p> <ul style="list-style-type: none"> <li>• “Who has already go to the swimming pool?”</li> <li>• “When you see based of swimming pool from side,what did you see, it is shallow or deep ?”</li> </ul> <p>Teacher shows the simulation pencil are plunged to the glass of water.</p> 	<ul style="list-style-type: none"> <li>• Students pay attention to the teacher.</li> <li>• Students do the pretest that is given from teacher.</li> </ul> <ul style="list-style-type: none"> <li>• Students answer”me!” by rising their hands. Then they answer,” “shallow!”the other one “deep!”</li> </ul>	20’

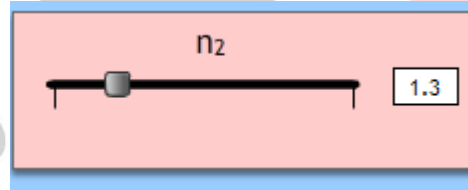
	<ul style="list-style-type: none"> <li>• What will happen with the form of pencil that you see?</li> </ul> <p><b>b. Motivation</b> Teacher asks one of the students who wear glasses to put off her/his glasses and read the thiny little words in front of the class.</p> <ul style="list-style-type: none"> <li>• Could you read those words?</li> <li>• Please put on your glasses and read the words,could you?</li> <li>• That is why the inventor find his invention about refraction theory. It is inorder to help human who has dissability. One day you can do like this and become usefull for everyone.</li> <li>• So,today we will learn about refraction.</li> </ul> <p><b>c. Conflict cognitive</b> Then, teacher asks one of the other students to come in front of the class. And asks them to see the little words with bottle that has been filled with water.</p> <ul style="list-style-type: none"> <li>• What happend?</li> <li>• Why it could be happend?</li> </ul> <p>Please pay attention Teacher asks students to come in front of the class. “I have coin in the empty glass. Please you stand until you can’t see this coin in the glass.” “Pour the water into the glasses. Could you se the coin?”</p> <ul style="list-style-type: none"> <li>• From this activity, what medium that is involved?</li> <li>• How is the particle arrangement in water and air?</li> </ul>	<ul style="list-style-type: none"> <li>• “Pencil are crooked when it is on the water.</li> <li>• I can not mam</li> <li>• Yes i can mam, the words clearly to read.</li> <li>• The words ca be read</li> <li>• Students answered,“because there are refraction phenomena.”</li> <li>• “Light travels in 2 different medium.”</li> <li>• Yes, i can see the coin.</li> <li>• Water and air.</li> <li>• Water is more denser than air.</li> </ul>	
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	<p><b>c. Problem</b></p> <ul style="list-style-type: none"> <li>• How is the refraction in 2 different medium?</li> <li>• How is light travel forms from optically less dense medium to denser medium, and vice versa?</li> <li>• Which direction that lights travels?</li> </ul> <p>• So, how is the light beam that travels in 2 similar medium?</p> <p><b>Manipulation</b></p> <ul style="list-style-type: none"> <li>• Could you explain where the image will be formed and the real coin object from activity above?</li> <li>• Actually what variable that we will observed?</li> </ul>	<ul style="list-style-type: none"> <li>• Light will be deflected when it is travels in two different medium.</li> <li>• Light travels from denser medium to the less dense medium will be refracted bends away from normal line.while light travels from less dense medium to denser medium will be refracted bends toward to normal line.</li> <li>• If light travels in 2 similar medium, the light will be continued and the real object will be seen.</li> <li>• Coin Image position that is formed is bends toward to water surface.and real coin object is placed on glass based.</li> <li>• Variable that is observed is light beam.</li> </ul>	
<p>Explain refraction phenomena, Gives an example of refraction phenomena, Observe beam of light</p>	<p><b>CORE ACTIVITY:</b> <b>Generalization</b></p> <ul style="list-style-type: none"> <li>• Now, if light travel from air to water,</li> </ul>	<ul style="list-style-type: none"> <li>• Students do all experiment activity in virtual laboratory media and write the result on their worksheet.</li> <li>• After they have already find their</li> </ul>	<p>40'</p>

when refract in 2 different medium, Define refraction phenomena, Classify the beam of light characteristic which refracts, Stated refraction law based on beam of light travels through 2 medium



- Can you describe the light beam that is formed?
- Where is the image that is formed?
- Why it could be happend?
- If the refraction index drag to the right(water),





- How is the particle arrangement of water?
- Could you explain if light beam travels from water to water?
- Where is the image that is formed?
- Why it could be happend?
- If the refraction index drag to the right (crown glass),

answer, some of them share with their friends by writing the answer on greenboard,the rest of them write in their worksheet

- Light beam bends toward normal line.
- Image formed toward water surface.
- Because light travels from less dense particle to the denser particle.
- Density of air particle is less dense
- Light beam is continued.
- There is no image formed
- Because light travel in the same



	<div data-bbox="645 193 1111 352" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <math>n_2</math>   </div> <ul style="list-style-type: none"> <li>• How is the particle arrangement of crown glass?</li> <li>• Could you explain if light beam travels from crown glass to water?</li> <li>• Where is the image that is formed?</li> <li>• Why it could be happen?</li> <li>• If the refraction index drag to the right (Diamond),</li> </ul> <div data-bbox="645 603 1111 762" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <math>n_2</math>   </div> <ul style="list-style-type: none"> <li>• How is the particle arrangement diamond?</li> <li>• Could you explain if light beam travels from Diamond to water?</li> <li>• Where is the image that is formed?</li> <li>• Why it could be happen?</li> </ul>	<p>medium.</p> <ul style="list-style-type: none"> <li>• Density of crown glass is denser than water.</li> <li>• Light beam bends away from normal line.</li> <li>• The image formed is in the deep of water.</li> <li>• Because light travels from denser medium to the less dens medium.</li> <li>• Density of diamond is denser than crown glass</li> <li>• Light beam bends away from normal line.</li> <li>• The image formed is in the deep of water.</li> <li>• Because light travels from denser medium to the less dens medium.</li> </ul>	
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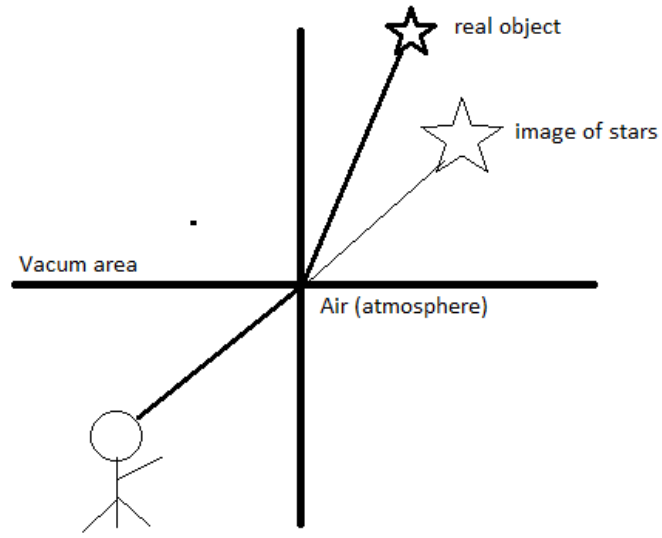
	<p><b>Verification</b></p> <ul style="list-style-type: none"> <li>Teacher do the discussion with students to make conclusion about this activity. If there is different answer, teacher make a verification and do the disscusion.</li> </ul>	<ul style="list-style-type: none"> <li>Students do the discussion and make a conclusion about the activity that has already done and do verification when there is different answer.</li> </ul>	
	<p><b>CLOSING ACTIVITY:</b></p> <p><b>Aplication</b></p> <p><b>Strengthening</b></p> <p>Teacher gives strengthen to the students about variables:</p> <ul style="list-style-type: none"> <li>Rays of light that passes through less dense medium to denser medium, the refraction of light beam that is formed will be close to normal line if travels from air to the water.</li> <li>Rays of light that passes through denser medium to less dense medium, the refraction of light beam that is formed will be bends away from normal line if travels from crown glass to the water and diamond to water.</li> <li>Ray of laight that travels in the same medium, the real object will be appear.</li> </ul> <p><b>Give the example of application</b></p>	<ul style="list-style-type: none"> <li>Students pay attention to the teachers.</li> </ul>	20'



Apply refraction law in daily physics refraction phenomena, Apply refraction law in simple cases of physics about refraction.

Teachers give the example of application in daily life.

- One of the application of refraction is when in the night we can see the stars, Stars that we see is the image from the real stars. Because light travels from denser medium (Vacum area) to the less dense medium( atmosphere).



#### Evaluation

- Ali is camping in the jungle and he has to read a map with little tiny words, but he doesn't bring magnifying glass. What should Ali do in order he can read the map? Explain!
- Teacher gives posttest to the students

#### Tasks

This task is the requirement for following the next lesson

- Students pay attention to the teachers.

- Students do evaluation from the teacher

	<p>next week. So, do it positively!</p> <ol style="list-style-type: none"> <li>1. What is the meaning of refraction?</li> <li>2. Draw the ray of light that travels from glass to water!</li> <li>3. Explain why the ray of light that is formed in no.2 as like that?</li> <li>4. Draw the ray of light that travels from Air to glass!</li> <li>5. Explain why the ray of light that is formed in no.4 as like that?</li> <li>6. Explain the law of refraction!</li> </ol> <p><b>Information</b></p> <ul style="list-style-type: none"> <li>• Today we have already done about some material, The most active students in this activity today is:....., The reward is performance score. Please gives applause to your friends!</li> <li>• The taskt is collected next week, and next week we will learn about converging lens. You can read first from books or internet</li> <li>• That is enough for today, thank you.</li> </ul>	<ul style="list-style-type: none"> <li>• Students do posttest</li> <li>• Students noted task for next week.</li> </ul> <ul style="list-style-type: none"> <li>• Students gives applause to their firends that earn the rewards .</li> <li>• Students pay attention to the teachers and greetings.</li> </ul>	
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