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| **Lesson**  |  |
| **Topic of the lesson:** Refraction of light. The law of refraction of light. |  |
| **Date:**  | **Teacher name:** Filipov A.V. |
| **CLASS: 8** | **Number present:**  | **Absent:**  |
| **Learning objectives(s) that this lesson is contributing to** | 8.5.1.6 - build a ray path in a plane-parallel plate;8.5.1.7 - apply the law of light refraction when solving problems. |
| **Lesson** **objective** | - build a ray path in a plane-parallel plate- apply the law of refraction of light when solving problems |
| **Success criteria** | - knows, between which quantities establishes the relationship of the Snell law;- formulates the law;- records the mathematical expression of Snell's law;- performs if necessary drawing to the task;- notes the angles of incidence and refraction;- records the law of light refraction for each of the considered interfaces between two media;- makes the appropriate analysis and conclusion on the solution of the problem |
| **Language objective** | **Key words and phrases:** Incident ray, refracted ray, angle of incidence, angle of refraction, Snell’s law, absolute and relative index of refraction.Refraction of light occurs due to ... The relative refractive index is called ... The absolute refractive index is called ... The relative and absolute refractive indices are related by the formula: ... The law of refraction of light is formulated as: ... |
| **Previous learning** | Light. Reflection of light. |
| **Necessary equipment and devices** | Computer, video projector, model, information from the textbook. |
| **Plan** |
| **Time**  | **Planned activities** | **Resources** |
| 1min | Good day, children. I’m glad to see you. Sit down, please. How are you? Are you fine? Are you OK? Who is absent today? |  |
| 2min | **Creating a problem situation**Students, look at the pictures, what do you see? https://im0-tub-kz.yandex.net/i?id=153f76fc7fafe2da7e35198fd9446b94-l&n=13 | Presentation |
| 3-4min | **Formulate the topic and objectives of the lesson together with the students**what is refraction?the law of refractionuse the law of refraction in solving problemsWhere have you seen the refraction of light? |  |
| 5-6min | **Terminology**incident ray – падающий луч,refracted ray – преломленный луч, angle of incidence – угол падения, angle of refraction – угол преломления, Snell’s law – закон Снелла, absolute index of refraction – абсолютный показатель преломления, medium – средаdenser – плотнееprotractor – транспортирdirection - направление | Vocabulary |
| 7-29 | **Video viewing and discussion**Why did the car change direction? (different speeds)*Почему машина сменила направление?*Когда свет переходит от одной среды в другую, он меняет свое направление. Это явление называется ***преломлением света****. (When light passes from one medium to another, it changes its direction)*Преломление возникает из-за того, что свет имеет различные скорости в разных средах.$$U=\frac{c}{n}$$U – a speed of light in a mediumc=3\*108 m/s – the speed of light in vacuumn - absolute index of refraction (page two hundred ninety seven)**experience demonstration. make a conclusion**you need to make a drawing and write that:if the second medium is denser than the first medium, then the angle of refraction is less than the angle of incidence. **n1<n2, sinα>sinγ**if the first medium is denser than the second medium, then the angle of incidence is less than the angle of refraction**n1>n2, sinα<sinγ**we write the law of refraction of light (Snell's law)$$\frac{sinα}{sinγ}=\frac{V\_{1}}{V\_{2}}=\frac{n\_{2}}{n\_{1}}$$α - angle of incidenceγ - angle of refractionU1 – a speed of light in a medium of first mediumU2 – a speed of light in a medium of second mediumn1 - absolute index of refraction of first mediumn2 - absolute index of refraction of second mediumhttp://www.gcsescience.com/light-refraction-glass.gif | Video 1 |
| 30-37 | **Determine the speed of propagation of the light ray in ruby.****V=3\*108/1.75=1.71\*108****Literacy** №4(page one hundred thirty five)https://im0-tub-kz.yandex.net/i?id=e550a1cc58eca548d38f33ccb6769bd8-l&n=13 | p.135 |
|  | Learn the terminology. §40 |  |
| 38-40 | Students summarize the lesson:Была ли достигнута цель урока?Какие новые слова сегодня узнал?Что было трудно? |
| **Summary evaluation** The teacher, together with the students, gives an overall assessment of the lesson.**Needs to show more effort.** You have made a lot of progress. |

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