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| Lesson Plan no : |
| Date : |  | Subject : | SCIENCE |
| Class : | 10 | Chapter : | LENS |
| Time : | 45 | Period : |  |

**Overview and Learning Objective**  
Lenses are essential tools in our daily lives, from eyeglasses to telescopes, and this lesson will explore their basic principles and how they manipulate light.  
  
LO-1: Students will be able to define the term 'lens' and identify different types of lenses, such as convex and concave.  
LO-2: Students will be able to explain how lenses refract light and demonstrate this understanding through simple experiments.  
LO-3: Students will be able to describe real-world applications of lenses, such as in cameras, microscopes, and telescopes.

**Curricular Goals and Curricular competencies**  
CG-1: Students will be able to define and describe the function of a lens in terms of light refraction and its application in various optical devices.  
CG-2: Students will be able to explain the relationship between the shape of a lens and its ability to converge or diverge light, understanding its impact on image formation.  
  
CC-1: Students will be able to identify and distinguish between convex and concave lenses, recognizing their characteristics and properties.  
CC-2: Students will be able to apply the concept of refraction to explain how lenses bend light, demonstrating their understanding through diagrams and simulations.  
CC-3: Students will be able to analyze the formation of images by lenses, explaining the relationship between object distance, image distance, and focal length.

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| Learning Objective | Curricular competencies | FACTUAL KNOWLEDGE | CONCEPTUAL KNOWLEDGE | PROCEDURAL KNOWLEDGE |
| LO-1 | CC-1 | Lenses refract light. Concave lenses diverge light. Convex lenses converge light. | Lenses refract light, converging or diverging rays. Convex lenses magnify, concave lenses reduce size. Lenses form images, real or virtual. | Identify the lens type by its shape Focus light using a magnifying glass Measure focal length of a convex lens |

**Essential question**  
Q-1: How do lenses manipulate light to create images, and what are the different types of lenses?  
Q-2: What are the key properties of lenses, such as focal length and magnification, and how do they affect image formation?  
Q-3: How are lenses used in everyday life and in scientific instruments, and what are the limitations of their applications?

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| **Teaching Points** | **Learning Outcomes** | **Sequential Learning Activities** | **Formative Assessment** | **Expected Queries** |
| TP-1: Lenses are curved pieces of transparent material that bend light, causing it to converge or diverge. TP-2: Converging lenses bring light rays together at a focal point, forming real or virtual images depending on the object's position. TP-3: Diverging lenses spread light rays apart, making objects appear smaller and farther away. | LO1, LO2 | Activity-1: Introduce lenses and their basic types: Convex and Concave. Activity-2: Demonstrate the effect of convex and concave lenses on light rays using a projector or a simple magnifying glass. Activity-3: Encourage students to experiment with different lenses to observe how they magnify or diminish objects and create images. | [formative assessment no 1] What happens to the light when it passes through a convex lens? [formative assessment no 2] Explain how a magnifying glass works using the concept of lenses. [formative assessment no 3] If you place an object at the focal point of a converging lens, where will the image be formed? | Q-1: What is the difference between a convex and concave lens? Q-2: How does a magnifying glass work? Q-3: What happens to light when it passes through a lens? |
| TP-1: Lenses are curved pieces of transparent material that bend light, causing it to converge or diverge. TP-2: Converging lenses bring light rays together at a focal point, forming real or virtual images depending on the object's position. TP-3: Diverging lenses spread light rays apart, making objects appear smaller and farther away. | LO1, LO2 | Activity-1: Introduce lenses and their basic types: Convex and Concave. Activity-2: Demonstrate the effect of convex and concave lenses on light rays using a projector or a simple magnifying glass. Activity-3: Encourage students to experiment with different lenses to observe how they magnify or diminish objects and create images. | [formative assessment no 1] What happens to the light when it passes through a convex lens? [formative assessment no 2] Explain how a magnifying glass works using the concept of lenses. [formative assessment no 3] If you place an object at the focal point of a converging lens, where will the image be formed? | Q-1: What is the difference between a convex and concave lens? Q-2: How does a magnifying glass work? Q-3: What happens to light when it passes through a lens? |

**summarization And Home work :**   
Lenses are transparent objects that refract light, causing it to bend.   
  
Q-1: What are the two main types of lenses?  
Q-2: Explain how a converging lens forms an image.  
Q-3: Describe how a magnifying glass works.

**Signature of Teacher**