Science Grade 4
Physical Science: Light (LI)

Outcome		1 - Beginning The student is having difficulty demonstrating an understanding of the concept.	2 – Approaching The student is developing an understanding of the concept.	3 – Meeting The student consistently demonstrates an understanding of the concept or has achieved the concept.	4-Exemplary The student independently demonstrates an in-depth understanding of the concept, and consistently applies this knowledge to new situations.
LI4.1 Investigate the characteristics and physical properties of natural and artificial sources of light in the environment.	**Natural**	• **I can carry out processes to** identify **some** of the characteristics **OR** physical properties of natural light in the environment, **with help**.	• **I can carry out simple processes with some accuracy** to identify **some** of the characteristics **OR** physical properties of natural light in the environment.	• **I can carry out processes accurately to identify many** characteristics **AND** physical properties of natural light in the environment.	• **I can design and carry out a process** to show a particular characteristic **OR** physical property of natural light in the environment.
	Artificial	• **I can carry out processes to** identify **some** characteristics **OR** physical properties of artificial light in the environment, **with help.**	• **I can carry out simple processes with some accuracy** to identify **some** characteristics **OR** physical properties of artificial light in the environment.	• **I can carry out processes accurately to identify many** characteristics **AND** physical properties of artificial light in the environment.	• **I can design and carry out a process** to show a particular characteristic **OR** physical property of artificial light in the environment.
Comments					

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LI4.2 **Analyze how light interacts with different objects and materials to create phenomena such as shadows, reflection, refraction, and dispersion.**	• I can classify opaque, transparent, and translucent materials. • I can identify shadows, reflection, refraction, **OR** dispersion as light interacts with different objects. • **With help**, I can demonstrate how light interacts with various objects.	• I can **classify** opaque, transparent, and translucent materials and **explain some of the differences**. • I can **identify** shadows, reflection, refraction, **OR** dispersion as light interacts with different objects, and **explain some of the differences**. • I can **demonstrate** how light interacts with various objects.	• I can **classify and explain the differences** between opaque, transparent, and translucent materials. • I can **classify and explain the difference** between shadows, reflection, refraction, and dispersion as light interacts with different objects. • I can **demonstrate and explain** how light interacts with various objects.	• I can **compare how light interacts** with opaque, transparent, and translucent objects. • I can **compare** how light interacts with different objects to create shadows, reflections, refractions, and dispersion of light. • I can **demonstrate a few practical applications** of how light interacts with various objects.
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LI4.3 Assess personal, societal, and environmental impacts of light-related technological innovations including optical devices.	**Personal impact**	• I can identify **a few** positive and negative impacts of light-related technological innovations on people.	• I can **identify some positive and negative impacts** of light-related technological innovations, **including optical devices**, on people.	• I can **explain the positive and negative impacts of light-related** technological innovations, including optical devices, **on people.**	• **I can recommend a light-related technological innovation** for my own use, **with examples and details for support**.
	Societal impact	• I can identify **a few** positive and negative impacts of light-related technological innovations on society.	• I can **identify some positive and negative impacts** of light-related technological innovations **including optical devices** on society.	• I can explain the positive and negative impacts of light-related technological innovations including optical devices **on society.**	• **I can recommend a light-related technological innovation** for use in society, with examples and details for support.
	Environmental Impact	• I can identify **a few** positive and negative impacts of light-related technological innovations on the environment.	• I can **identify some positive and negative impacts** of light-related technological innovations **including optical devices** on the environment.	• I can explain the positive and negative impacts of light-related technological innovations including optical devices **on the environment.**	• **I can recommend a light-related technological innovation** for use in the environment with minimal negative impact, with examples and details for support.
Comments					