

**INSTRUCTIONS:** This game teaches image recognition, matching, and basic terms related to the science of light (optics). **How to play?** Separate picture cards from word cards. Put the word cards face up, off to the side. Shuffle the square cards and put them face down in rows. The youngest person starts, and play proceeds clockwise. On each turn, the player turns over two square cards and keeps them if they match (for instance, two rainbows). If they don't match, the cards return to the table, face down; the next player then plays. The trick is to remember which cards are where. Once all cards are taken, put them all back, images facing up and match the word on the rectangular card with each pair – so you can name optical phenomena! You don't have to use all cards for the game. Start with how many pairs you like.

**FACTS:** We often refer to light as white light, but white light combines many different colors. **Dispersion** is a process that separates white light into its different colors. When light hits a surface, it may be **transmitted** (moved through), **reflected** (bounced off), **refracted** (bent and moved through), or **absorbed** (soaked up).

Light can be **scattered** (redirected in many different directions). Light can be blocked, producing a dark area called a shadow.

Light is everywhere, in nature and technology. Light **reflects** from objects and travels to our eye so we can see. Light **reflects** and **refracts** in microscopes so we can zoom in on tiny objects. Light **reflects** in optical fibers many, many times (we call it total internal reflection) so the fast internet can be delivered to our homes. We see a rainbow because light **reflects**, **refracts**, and **disperses** in a waterdrop. The sky is blue and the sunset red because blue light is **scattered** more than other colors by particles in the atmosphere. A green leaf and a green frog are green because they **absorb** all light colors except green.

Light in nature is beautiful. Light-based technology impacts how we communicate, travel, diagnose and treat diseases and improve our environment. The world celebrates the importance of light on May 16<sup>th</sup> during the International Day of Light. We hope you enjoy the game and get inspired by the science of light.

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