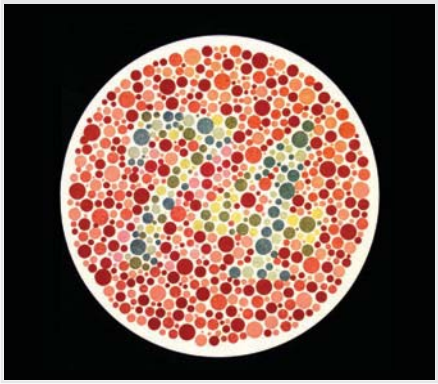
Earth Science Connection

Color blindness on Pingelap Catastrophic weather events can have significant impacts on populations, sometimes for generations to come. In 1775, Typhoon Lengkieki struck the Micronesian atoll of Pingelap. Today, roughly 1 in 10 residents of Pingelap are entirely colorblind, compared with a rate of 1 in 40,000 individuals worldwide.

Using library and Internet resources, research the link between color blindness in the residents of Pingelap and Typhoon Lengkieki. Prepare a report discussing your findings, including factors such as founder effect or genetic drift that may have contributed to the phenomenon.

FIGURE 1: Colorblind individuals may have difficulty distinguishing colors.



Humanities Connection

Evolution of Fashion Changes and adaptations in culture occur in human populations—though mostly due to pressures different than those that drive biological evolution. Fashion, for instance, has "evolved" in nearly every human society as social norms, artistic trends, climate conditions, and other factors develop and change. Many aspects of a society are reflected in the fashion preferences of its people, and some fashion trends are uniquely representative of a particular time and place.

Using library and Internet resources, research the evolution of fashion trends over time in a particular society. Write a blog post about a specific change in fashion, and describe some of the societal changes that may have led to this fashion evolution. Be sure to include representative pictures to illustrate your findings.

FIGURE 2: Trends in fashion change over time in most societies.

Engineering Connection

Animal Influence in Robot Design Research focused on the ways that animals behave, react, and move has led to potential improvements in robotic design. Engineers often use strategies evolved in animal species when developing robots. For example, engineers have developed robots that climb using technology modeled on how gecko feet "stick" to surfaces. Robotics engineers have also found a way to add stability to robots based on studies of how fish use their tails to swim.

Using library and Internet resources, research the design and function of a robot that has been influenced by animal behavior or movement. What specific characteristics or strategies were "borrowed" from the animal in the robot's design? What other characteristics of the animal that inspired the design might be useful for the robot's function? Write a report detailing your findings and suggestions, and present it to the class.

FIGURE 3: Many robotic designs are influenced and inspired by adaptations in animals.