

## Bill Nye Skin Video Guiding Questions

- 1. What is the largest organ in the human body?** *The skin, which is part of the Integumentary system, is the single biggest organ in the human body. It has about twice the mass of the human brain.*
- 2. What are the main functions of the skin and the Integumentary system?** *The main functions of the Integumentary system are (1) acting as a barrier to keep germs and other harmful substances out of the body and to keep body fluids in the body; (2) to regulate body temperature through sweating and increased / decreased blood flow in the skin; (3) to block ultraviolet rays from the Sun and convert some sunlight into vitamin D; and (4) to provide the sense of touch.*
- 3. What is the outer layer of the skin called?** *The epidermis is the outer layer of the skin.*
- 4. How does the skin control body temperature?** *When the body is too hot, blood vessels close to the surface of the skin open up (dilate) to allow more heat to be carried to the body's surface where it can radiate off into the air. If that does not cool the body enough, then sweat glands in the skin make the skin wet so that evaporative cooling can lower the temperature more. When the body is too cold, the blood vessels close down (constrict) to limit heat loss, and body hair is fluffed up (see goosebump question below) to trap more heat next to the body.*
- 5. Why do we get goose bumps?** *Each hair has a small muscle attached to its root in the skin that tightens when cold. This causes the hair to stand straight up, and the base of the hair as it leaves the skin to push out as a goose bump. The purpose of this muscle contraction is apparently to create more dead air space next to the skin to add insulation and limit heat loss.*
- 6. What is the pigment in the skin called? What function does this pigment perform?** *The brown pigment in the skin is called melanin. People with very dark skin have more melanin, while very light skinned people have little melanin. The two purposes of melanin is to block ultraviolet rays from the Sun from damaging the skin (as in sunburn) and to help produce vitamin D from sunlight.*
- 7. Why does skin itch?** *Skin itches when it becomes inflamed by exposure to a chemical (like insect bites and poison ivy), excessive sunlight, or when too thick a layer of dead skin builds up on the surface. The itching sensation is your body encouraging you to remove the cause of the irritation, either by washing or scratching.*
- 8. Where is your skin thickest and thinnest?** *The skin is thickest on the bottom of the feet or in places that receive a lot of wear, like the calluses on a worker's hands. The skin is thinnest on the eyelids.*
- 9. Where is the skin most sensitive to the touch?** *The skin is most sensitive to the touch on the lips, fingertips and the bottom of the feet (particularly on the toes).*
- 10. What causes pimples?** *Pimples are caused by bacteria growing in the trapped oil secreted by oil glands under the skin's surface at hairs. The bacteria are attacked by white blood cells, which form the puss which you see as a pimple.*