STEM Sims™

Influenza

Influenza

Do you need an idea for a scientific study? Try out one of our ideas or make one of your own.

Start learning right now about how influenza and other illnesses can be passed from one species to another. Take the following brief quiz to see how much you already know about influenza and genetics. See the bottom of page 4 to check your answers.

1. Since the beginning of recorded history, more people have died from influenza than from any other infectious disease.
   a. true
   b. false

2. Which animal shows symptoms of the flu, such as runny nose, sneezing, and conjunctivitis, most similar to those symptoms displayed by humans?
   a. dog
   b. cat
   c. mouse
   d. ferret

3. Which influenza subtype is commonly referred to as the “bird flu?”
   a. H1N1
   b. H5N1
   c. H3N8
   d. H3N2

4. Which animal is used in making the human vaccine protecting against influenza?
   a. cow
   b. chicken
   c. horse
   d. pig

5. The greater the change in the surface proteins (the H and N antigens) in an influenza virus, the:
   a. less severe the threat of a pandemic.
   b. lower the immunity level of the general population.
   c. higher the immunity level of the general population.
   d. more likely the virus is from birds.

Mix and Match

a. Imagine that you just bought the wardrobe below. How many different outfits of one pair of pants and one top could you wear from your wardrobe?

b. Now imagine that you purchased new clothes and your wardrobe consisted of the elements below. How many different outfits of one pair of pants and one top could you wear from your wardrobe?

c. Yes, you bought even more clothes (shown below). How many different outfits of one pair of pants and one top could you wear from this wardrobe?

d. Do you see any pattern in the way the number of possible outfits is related to the number of wardrobe elements? If so, describe the pattern.

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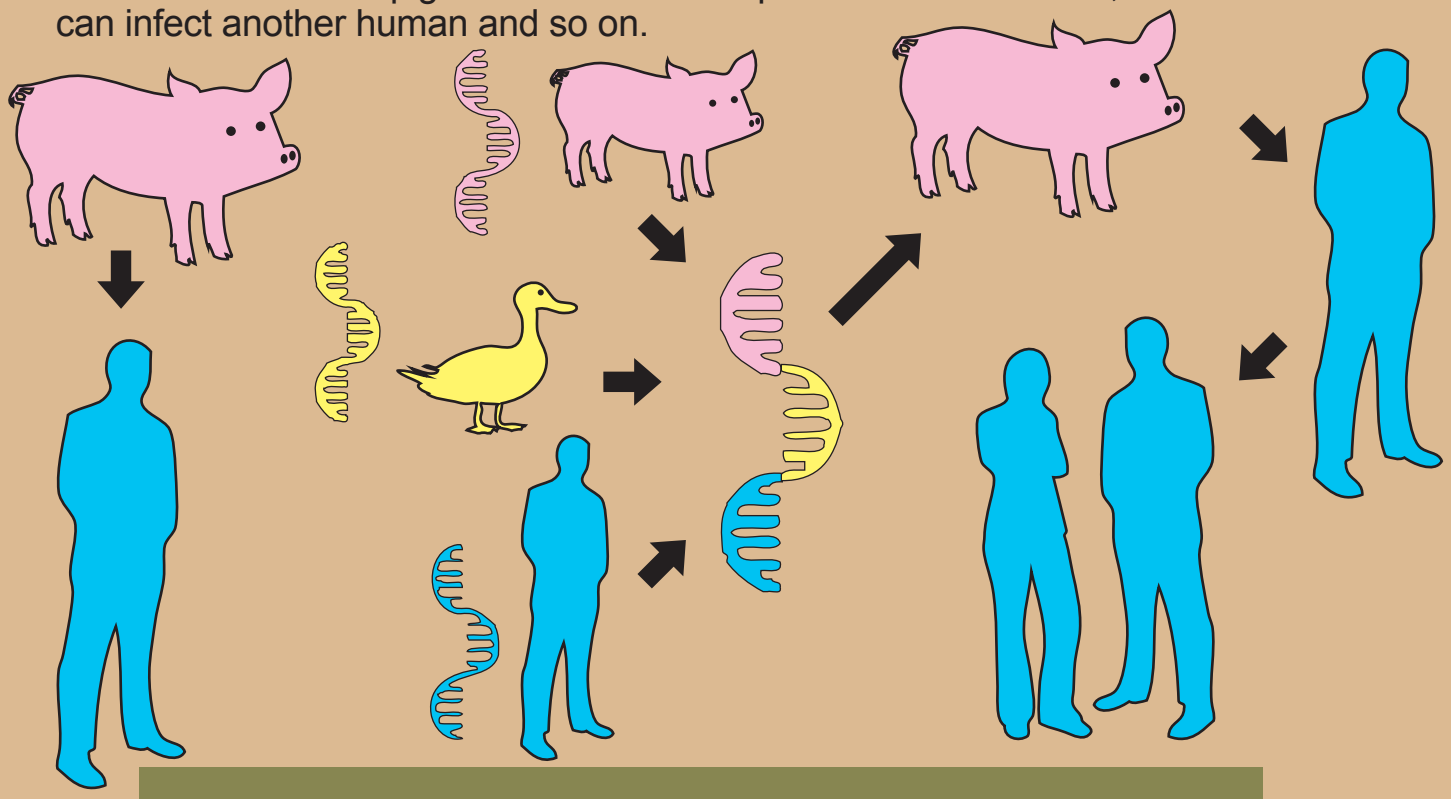
Viral Mixing Pig Pot

So you might ask, what does mixing and matching a wardrobe have to do with influenza? Well, humans normally can get swine flu from a pig only if they have direct contact with a pig. The swine flu cannot be transferred from one person to another person. Since most people rarely encounter pigs in their daily lives, swine flu is not a big problem with most people. But, genes from pigs, birds, and humans can mix and match (like the wardrobe activity) and create new forms of the swine flu that now can be transmitted from one person to another person. The new genetic "outfit" carried in the pig's DNA can now be passed to one human, then that human can infect another human and so on.



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Answers: Page 2 Answers: 1) a, 2) d, 3) b, 4) b, the vaccine is grown in a chicken egg culture, 5) b. **Page 3 Mix and Match Answers:** a) 2, b) 6, c) 12, d) multiply the number of tops times the number of bottoms.

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