



EDUCATIONAL ACTIVITY KIT

BIOSECURITY



These fun activities introduce participants to the subject of farm biosecurity. The activities focus on learning the methods of animal disease transmission, recognizing biosecurity signage and procedures, and taking pride in biosecurity measures in place on one's own farm.



Learning objectives

- learn about biosecurity through fun activities and games
- gain an understanding of what biosecurity is
- relate biosecurity to farming practices
- recognize what biosecurity on a farm looks like
- identify biosecurity practices on one's own farm

Learning methods

- moving and running in active games
- creating artwork with one's feet
- interacting and working as a team with other participants
- identifying biosecure practices
- collecting and presenting information to others

Activities

Disease Transmission

- Outbreak Tag
- Infected!
- Fancy Footwork Boot Art

Biosecurity

- The Face of Biosecurity
- Biosecurity on My Farm





OUTBREAK TAG

Learning objectives

- gain an understanding of the potential for rapid disease transmission on farms
- understand that measures can be taken to prevent or to be prepared for a disease outbreak

Materials

- a large, open space

Directions

- 1 Tell participants that they are going to pretend to be the animals in a herd or flock (choose different types of animals depending on the types of farms the participants are from).
- 2 Designate one person as the *infected animal*. That person is *it*.
- 3 Instruct the rest of the class (healthy members of the herd or flock) to run around and avoid being tagged (infected) by the person who is *it*.
- 4 Every person tagged becomes an infected animal as well and must also try to infect others.



! Did you notice that...

- once an animal is infected, the situation can quickly become difficult to manage

continued...



Variations

This game can be played with a number of variations to highlight different principles of biosecurity. After the initial game has been played, try one or several of the following:

The Veterinarian

- Designate one participant as the veterinarian, as well as designating an infected animal.
- Explain that the veterinarian cannot become infected, but instead must run around and tag as many infected animals as possible; once an infected animal has been tagged by the veterinarian, they are no longer infected.
- Start with one veterinarian, but more children can be designated as veterinarians as the game goes on; this variation shows the difference in infection rates when there is a solid animal health management plan in place.

! Did you notice that...

- when there was a veterinarian (or several) it took longer for all of the animals to become infected, or that, possibly, not all of the animals got infected
- it is important to have a good animal health management plan in place and to be prepared in case of disease outbreak or illness in the herd or flock; such a plan can reduce losses and keep the animals healthier

In Confined Quarters

- After playing the game in a large open space, alter the boundaries and repeat the game in a smaller and confined space.

! Did you notice that...

- when animals are kept in close proximity to one another, a disease can spread more rapidly among them

continued...



The Immobilized Animal

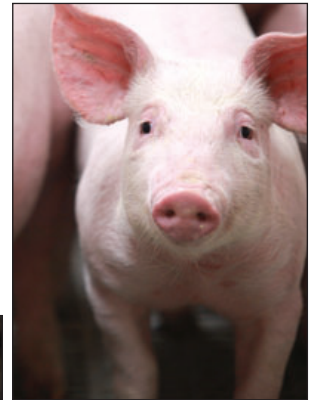
- Designate one participant as the infected animal and instruct them to stay rooted to one spot.
- Have that participant try to tag the others while standing still in that location.

! Did you notice that...

- when an infected animal is isolated, or kept separate from the rest of the herd or flock, disease spreads more slowly, if at all

Other variations

- Some children can discreetly be given vaccines, meaning that even if they are tagged, they will not become infected.
- More children can be designated as veterinarians to keep all the children from becoming infected animals.





INFECTED!

Learning objectives

- understand that there are different methods of disease transmission
- understand what is involved in each of these methods

Glossary

direct contact transmission requires physical contact between an infected animal and a susceptible animal

indirect contact transmission results from a susceptible animal coming into contact with a contaminated surface rather than through direct contact with an infected animal

airborne transmission involves the spread of disease through the air, rather than through any direct or indirect contact between animals: some micro-organisms are able to stay suspended in the air (as droplets or on dust particles), allowing them to enter a body through the respiratory tract; fortunately, few micro-organisms can survive for long outside the body, which limits airborne transmission



continued...



DIRECT CONTACT

Materials

- none

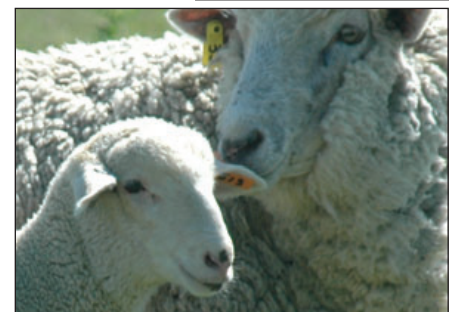
Directions

- 1 Secretly designate one participant as *infected*.
- 2 Direct all participants (including the one who is infected) to walk around and shake each other's hands.
- 3 The person who is infected must *squeeze* the hand of any participant with whom they shake hands.
- 4 Anyone whose hand is squeezed becomes *infected* — and must now squeeze hands when they shake hands.



! Did you notice that...

- often you cannot tell by looking at an animal if it is infected, especially if it has not yet begun to show symptoms
- one way for disease to spread among these animals is through direct transmission — this means that an animal becomes infected through physical contact with an infected animal



continued...



INDIRECT CONTACT

Materials

- 2 large, wet sponges, or
- 2 hardboiled eggs or ping pong balls
- enough spoons for each participant
- large, open space

Directions

Sponge Relay Race

This variation is a relay race using wet sponges.

- 1 Divide the group into two teams.
- 2 Point out the start and finish lines of the race. Depending on the length of the race course, assign each team member a portion or a full lap of the course.
- 3 Line up the two teams behind the start line. Give the first runner on each team one of the sponges.
- 4 Start the race. When the first runners finish their portion, they must pass the wet sponge to the next runner on their team, without touching their teammate as they pass the sponge.
- 5 After the race is finished, explain that the water in the sponge represents disease-causing germs. Ask the participants if their hands got wet at any point during the race. Everyone who touched the sponge should have gotten wet hands. Therefore, everyone who touched it could have also become infected — without ever having touched one another.



! Did you notice that...

- disease can be transmitted, even if animals never touch one another; if one animal comes into contact with a contaminated surface, this animal can become infected
- pathogens can be carried on clothing, boots, or equipment and be transferred from one place to another

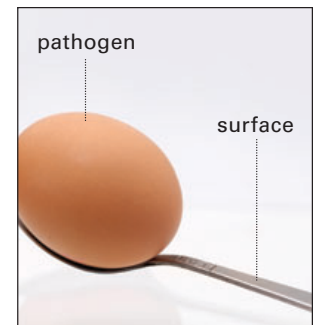
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Egg Relay Race

This is a relay race using hardboiled eggs or ping pong balls, and spoons.

- 1 Divide participants into two teams.
- 2 Give each participant a spoon.
- 3 Point out the start and finish lines of the race. Depending on the length of the race course, assign each team member a portion or a full lap of the course.
- 4 Give the starting runners from each team one of the hardboiled eggs or ping pong balls. Have them balance the egg or ball on their spoon.
- 5 Explain that the egg or ball represents a pathogen, while the spoon represents a surface. Each participant runs until they pass the egg or ball to the next runner on their team. They must transfer the egg or ball to the next runner's spoon without directly touching the egg or ball. This represents pathogens being carried on surfaces such as boots or equipment.
- 6 If the egg or ball falls off their spoon as they run, participants may pick it up to put it back on but this means that they are now infected — through indirect contact transmission — and because they are now “sick,” they must walk instead of run.
- 7 The race continues until the last person has completed their leg of the race.



! Did you notice that...

- disease transmission can occur when animals seem healthy (represented by the participants who never dropped the egg or ball and ran the entire way) as well as when they show symptoms (represented by the participants who dropped the egg or ball and had to walk)
- participants never had to touch one another for the pathogen to be able to travel from the first participant to the last; they all came into contact with it indirectly

continued...



AIRBORNE CONTACT

Materials

- soapy water
- bubble wands

Directions

- 1 Have the participants blow bubbles to observe how they are carried through the air.
- 2 Relate this to airborne pathogens, explaining that some diseases travel by air.
- 3 Ask the participants to imagine that each time a bubble *lands* on them they become infected!

! Did you notice that...

- disease can be transmitted by air



FANCY FOOTWORK **BOOT ART**

Learning objectives

- discover that pathogens can be tracked easily from one place to another on our clothing, shoes, or boots, and that it is necessary to take precautions in order to reduce this risk
- gain a deeper understanding of indirect disease transmission

Materials

- large roll of paper or several sheets of bristol board
- plastic boot covers or plastic bags
- paint
- shallow pans

Directions

- 1 Set the paper out on the floor in a large open space. If this activity is being done indoors, it may be advisable to spread old newspaper on the floor around the activity area.
- 2 Put plastic boot covers or plastic bags on over shoes.
- 3 Step in some paint.
- 4 Walk around on the paper that has been set out on the floor and observe the effect.
- 5 Repeat steps 3 and 4.



continued...



Variation

- Think of some common visitors to farms and assign these roles to the participants (e.g., farm employees, veterinarians, neighbours, suppliers, maintenance workers).
- Designate each role a specific paint colour (e.g., employees are purple, suppliers are green, etc.).
- Observe the effects as the colours are tracked around and mixed together on the paper; this represents the potential for disease transmission if steps are not taken to reduce the risk of transferring pathogens from one farm to another.

! Did you notice that...

- the paint is tracked just as pathogens can be tracked unknowingly onto farms on the soles of boots or shoes.
- by covering footwear before entering a farm, it is possible to avoid tracking in anything unwanted or harmful.





THE FACE OF BIOSECURITY

Let's look at biosecurity and how it can help reduce the risk of disease transmission among animals on a farm.

Learning objectives

- determine what biosecurity looks like on a farm
- identify biosecurity signage and interpret the meanings
- recognize biosecure farming practices
- identify ways to improve farm biosecurity

Materials

- biosecurity pictures

Directions

- 1 Show participants the series of biosecurity pictures.
- 2 Ask participants to identify biosecure farming practices, as observed in the pictures.
- 3 Encourage discussion about why the practices observed in the pictures are biosecure — what do they help prevent, or how do they make these farms biosecure?
- 4 Encourage discussion about practices or methods that could be adopted to further improve farm biosecurity.

Alternative: Biosecurity Sign Making

Materials

- materials for sign making (paper, markers, etc.), or access to digital multimedia

Directions

- ⋮ Ask participants to design biosecurity signs that could be posted on their own farms.

continued...



BIOSECURITY PICTURES



1



2



3



4

continued...



BIOSECURITY PICTURES



5



6



7



8

continued...



BIOSECURITY PICTURES



9



10



11



12



BIOSECURITY ON MY FARM

Learning objectives

- realize that biosecurity measures are already in place on most farms
- understand that all farms do some things well and need to improve on others
- recognize good biosecurity practices
- develop a sense of pride and ownership over farm biosecurity

Materials

- imagination! (and any materials as determined by the participants)

Directions

- 1 Have participants pick one thing that contributes to their farm's biosecurity (e.g., having a set of clothes and boots that stays in the barn; wearing disposable gloves; signage showing access restrictions; isolating new animals; washing hands often).
- 2 Have participants prepare some information about this practice to share with the rest of the group (e.g., why it is done, how it is enforced, what it helps to prevent)
- 3 Encourage participants to be creative in how they present this material (e.g., through a skit, artwork, game, photography, music, having the other participants perform a task).

! Did you notice that...

- biosecurity can be seen as a gradient — a farm can be more biosecure, or less biosecure, rather than simply biosecure or *not* biosecure
- simple measures (washing boots or putting on boot covers) can go a long way towards improving a farm's biosecurity.
- clear signage is an important part of biosecurity, to indicate what or who is or is not permitted in certain areas
- many biosecurity practices are common sense and are already in place on many farms
- all farms do some things well and need to do other things better



CONCLUSION



Background Information

bio life or relating to living things

security protection or precautions to guard against harm or attack

Biosecurity is an immensely broad topic, defined by the United Nations' Food and Agriculture Organization (FAO) as "a strategic and integrated approach that encompasses the policy and regulatory frameworks that analyze and manage risks in the sectors of food safety, animal life and health, and plant life and health, including associated environmental risk".

The Canadian Food Inspection Agency outlines the "Basic Principles of Biosecurity" as follows:

ACCESS MANAGEMENT

- designate distinct zones
- control movements between these zones

ANIMAL HEALTH MANAGEMENT

- manage animal movement
- observe animals for signs of disease
- establish a response plan for potential disease situations

OPERATIONAL MANAGEMENT

- properly dispose of dead animals
- manage manure according to regulations
- keep premises, buildings, equipment and vehicles clean
- maintain facilities in good repair
- obtain production inputs from a reliable source
- control pests
- plan and train staff on biosecurity protocols

(www.inspection.gc.ca/biosecurity)

Biosecurity is an important aspect of farming. Simple measures employed regularly can go a long way towards preventing future problems — and can be the key to keeping herds, flocks, and crops healthy.

BIOSECURITY



Thank you for downloading this Educational Activity Kit.
We hope that you learned something new as a result of participating
in these activities and that you had fun in the process!

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