# Herd Immunity (10-15 mins)

This activity is suitable for school and community groups and can be found in the [KS3 lesson plan](http://www.e-bug.eu/ks3-vaccinations) “Vaccinations”. This activity will help participants understand how vaccinations can prevent the spread of infection.

## Use the introduction in the KS3 lesson plan to discuss:

* which vaccines/immunisations they have had, e.g., polio, MMR, or any holiday vaccinations and if they know what the vaccines were for.
* Explain that immune means that you are protected from the serious effects of infection and that immunisation is a way of increasing the body’s protective immunity to both bacterial and viral diseases.
* Explain that vaccines are a small, inactive, and harmless amount of the microbe/disease which teaches our body how to fight the harmful microbe when or if we get attacked by the disease.
* Explain how vaccines work. Explain that antibodies pass from mother to child through the placenta in the womb and breast milk after birth helping to protect new-born babies from disease. However, this doesn’t work for all diseases, e.g., women are given a vaccine when they are pregnant to protect their unborn baby from whooping cough. This will provide protection from when the baby is born until they are old enough to have their own vaccine (8 weeks old).
* Remind the group that each type of microbe has an outer coating which is unique to the microbe, but because some microbes change their outer coats so quickly, it is difficult for scientists to make vaccines for these infections, or, like the flu vaccine, a new one has to be made each year.

## Before you begin you will need:

* Lesson plan for KS3 Vaccination, available on the website link [here](http://www.e-bug.eu/ks3-vaccinations)

## Use the following steps as a guide to implement this activity:

1. Give everyone a red ‘infected’ card, blue ‘recovering but still infectious’ card; and white ‘immune’ card.
2. For every ten people, give seven of them the purple ‘susceptible’ card, and the other three a yellow ‘vaccinated’ card
3. Select a person in the middle of the room to hold up their red card. Explain that they are now infected by a disease. Ask them to touch two people in their vicinity.
   1. If the person has a purple card, this person is now infected and must hold up a red card.
   2. If the person was dealt a yellow vaccinated card, they should display their yellow vaccinated card and will not transmit the infection onto anyone else.
4. Once a person with a red card has touched two people, they should switch to their blue card and touch two more people. Again,
   1. If the person has a purple card, this person is now infected and must hold up a red card.
   2. If the person was dealt a vaccinated card, they should display their yellow vaccinated card and will not transmit the infection onto anyone else.
5. Once a blue card holder has touched two people, they can now switch to the white ‘immune’ card, and do not need to take any further action.
6. The game ends when everyone in the group is either holding a yellow or a white card. Discuss with the group:
   1. What difference did the people with yellow cards make to how quickly the disease spread?
   2. What would have happened if the disease had caused severe illness? How many people would have been ill?
7. Note the downward trend in infection transmission as more people become infected. It may be beneficial at this point to explain the term ‘herd immunity’. Herd Immunity is a type of immunity which occurs when the vaccination or infection of a portion of a population provides protection to unprotected individuals. However, herd immunity caused through infection can have serious consequences for the population such as illness and long-term effects.
8. Now repeat the game. This time, for every ten people, give three of them the purple ‘susceptible’ card, and the other seven a yellow ‘vaccinated’ card. You can change the ratios to provide different scenarios.
9. After repeating the game using different scenarios, ask the group to discuss the differences between the scenarios and how it demonstrates the importance of vaccination to break the transmission of diseases in the community.

**Use the plenary or discussion questions to check participant’s understanding after the activity is completed.**