*Institute for Research in Schools*KS3 Covid-19 Lesson 2

This lesson is aimed at KS3 students. The lessons are produced by the Institute for Research in Schools in partnership with the University of Bristol.

The lessons aim to help students apply their studies to the Covid-19 pandemic, discovering important STEM career possibilities and applying mathematical principles to better understand the Covid-19 data available.

Lessons comprise a broad lesson plan, an accompanying PowerPoint and all other necessary materials. They can be carried out in the classroom, as a lesson over virtual platforms such as MS Teams, or they can be set for independent study.

**Lesson 2:**

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| Slide 1 | Titles |  |
| Slide 2 | Outcomes:   * Explain what the R-number is * Make links between behaviour and the R-number * Apply what you know to manage a pandemic * Write a persuasive TV or radio advert to explain your strategy to control the virus. | Introduction of outcomes. |
| Slide 3 | Video – mousetraps and ping pong balls | This video was released in the USA to encourage people to socially distance from one another. The rate of ping pong balls being released is exponential.  The R-number would be the number of ping pong balls (infections) set off from the mousetraps (people) by the first ping pong ball (infection) arriving. With the mouse traps so close together, a single infection sets off many, which in turn each cause many, leading to a huge number of infections. The first bit of the film would be a good model for a disease spreading with a very high R rate.  When the mouse traps are spread out, an infection (ping pong ball) arriving does not set off an infection in any of the other traps. |
| Slide 4 | What do you remember about the R-number? | The R-number of disease spread is how many people a single person infects, on average.  Social distancing reduces the R-number by reducing the number of people a single infected person can spread the disease to.  There are lots of other things that can reduce the R-number. For example, reducing the numbers of people mixing with each other, increasing hand washing, isolating those who are ill. Can they think of more?  (10 mins) |
| Slide 5 | You are the City Leader of Green Plains, a large city in the UK. A disease has arrived in your city, and you must make decisions on how to manage it.  You have a small team to work with, and an information sheet.  You must decide what to do, then communicate this with your loyal citizens. Good luck! | Students can do this activity alone or in small groups (no more than three)  Use worksheet KS3.2 for this activity |
| Slide 6 | Presentations from the City Leader |  |
| Slide 9 | Review of outcomes  Outcomes:   * Explain what the R-number is * Make links between behaviour and the R-number * Apply what you know to manage a pandemic * Write a persuasive TV or radio advert to explain your strategy to control the virus. |  |