



BRITISH  
SCIENCE  
WEEK  
2022

British Society for  
**immunology**

# ANTIBODY AND VIRUS ORIGAMI

If you're infected with a virus, your body is ready to fight using antibodies which stick to a virus and encourage immune cells to attack and destroy. We grow specific antibodies during an infection or after vaccination. In this activity, you can fold an antibody, build amazing virus-like sculptures with origami and celebrate your amazing body.

🕒 15 minutes

**Skill set:** Imaginative, patient, resilient



## Kit list

Any square paper!



## Instructions

- 1 Origami takes time and patience. Look carefully at the pictures on the next page and think of this as a puzzle. If you're stuck, watch our video [immunology.org/origami-antibody-virus](https://immunology.org/origami-antibody-virus) ✨.
- 2 If your paper is not square to begin with, follow the instructions on how to make a square paper.
- 3 Now it's time to make an origami antibody.
- 4 When you have finished the antibody, it is time to build amazing virus-like sculptures. Viruses can make us unwell. They are tiny and have a spiky outside and instructions inside to make more viruses (DNA or RNA). Thankfully our immune system makes antibodies to stop viruses. Vaccines encourage your body to grow lots of antibodies so you can be protected from future infection.

- 5 Look carefully at the diagrams for the virus origami. If you get stuck, look at [immunology.org/origami-antibody-virus](https://immunology.org/origami-antibody-virus) ✨.



## Watch out

- Find out more about your immune system with the British Society for Immunology and discover 'Our Heroic Bodies' - illustrations of immune cells, bacteria and viruses to add colour to while learning: [immunology.org/celebrate-vaccines/our-heroic-bodies](https://immunology.org/celebrate-vaccines/our-heroic-bodies) ✨.
- Find out more about how vaccines work at [celebratevaccines.com](https://celebratevaccines.com)



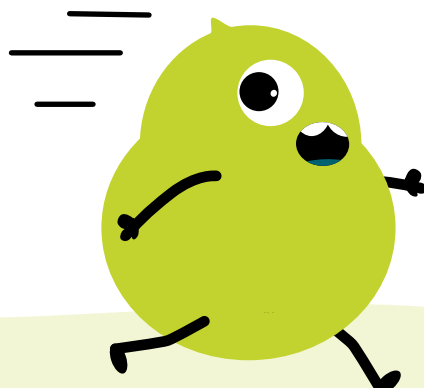
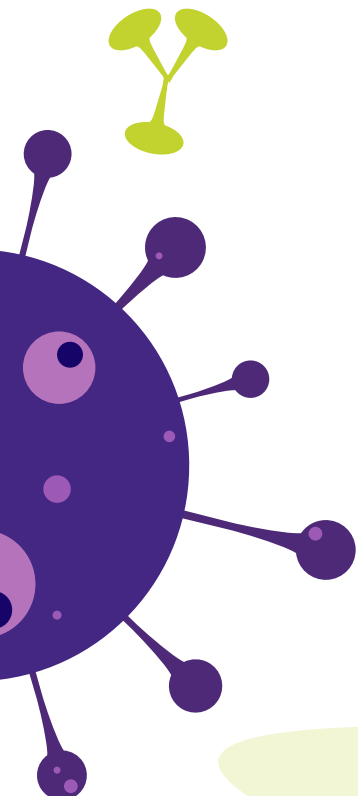
## At home

Make a collection of colourful antibodies to hang as decorations. Do you know the names of any viruses or bacteria that your body needs antibodies to protect against?



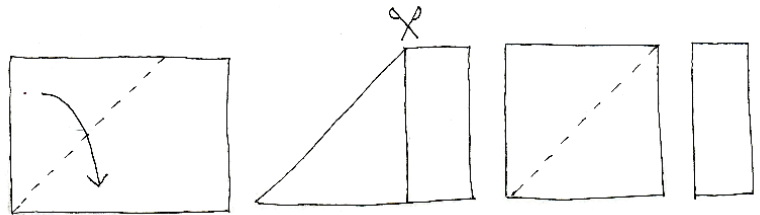
## Career options

Become an immunologist to study the immune system. You could work in a laboratory, developing vaccines against infectious diseases. Or become a 'clinical immunologist' – doctors who help patients unwell in hospital. If you enjoy origami maybe you could become an engineer.

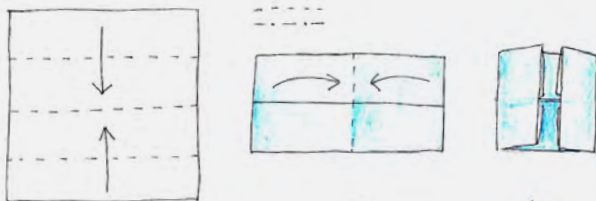


# ANTIBODY AND VIRUS ORIGAMI ACTIVITY SHEET

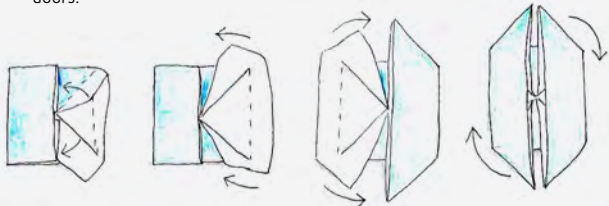
To make a square from A4, take a top corner down to line up with the bottom to make a sharp point and remove the rectangle.



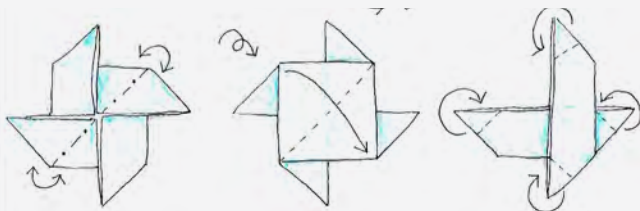
## Antibody origami



- 1 Fold your square in half, open it and fold the outsides to meet the line you created, like double doors.
- 2 Keeping the 'doors' closed repeat again – fold in half, open & bring outsides to the middle to make a square.

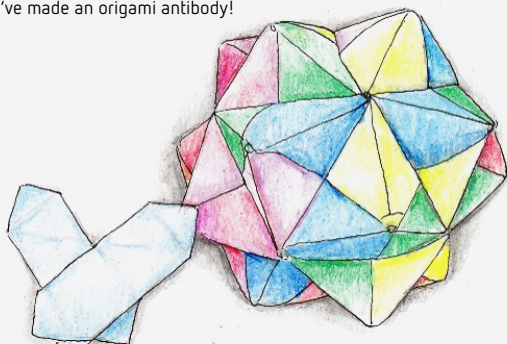


- 3 Open one door and make two diagonal folds from the centre of the inner square to the corners. Flatten down to make points. Repeat on other side.
- 4 Fold over opposite points to make a 'windmill'.

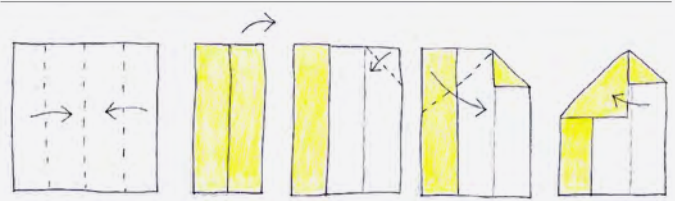


- 5 Turn the 'windmill' over to the smooth square. Fold along the diagonal and flip out the top and bottom 'windmill' arms to make a 'Pac man'.
- 6 Crease the four points, open them up and tuck into the pocket between the folds.

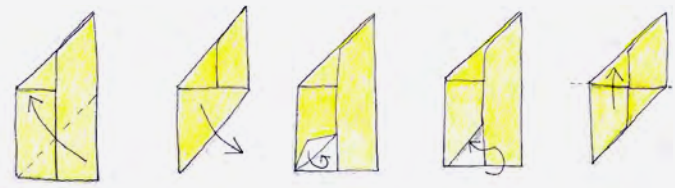
- 7 You've made an origami antibody!



## Virus origami



- 1 Fold your square in half, open and fold the outsides to the middle, like double doors.
- 2 Open the right 'door'; fold the top right corner down to the quarter crease to make a triangle.
- 3 Bring the left 'door' down to meet the triangle and close the right side.



- 4 Bring the bottom right corner to the line.
- 5 Open and a 'tongue' appears - tuck it underneath.
- 6 Take the bottom right and slide it under.
- 7 Fold up to make 'bunny ears'.



- 8 Take the smooth side and fold the top point down.
- 9 Turn over and repeat.
- 10 Open to reveal a zig-zag shape with two pockets in the middle. You have made one unit for building!

You can now get building! The point of one will plug into the pocket of the next. 3 units connect to form a strong triangle.



3 units

6 units (cube)

12 units  
(octahedron)

30 units  
(dodecahedron)

Different numbers of units create different shapes.  
Many viruses look like the final one with pentagons on each side.