

Noses Are Red

Noses Are Red is a show about allergies. The show explains the basics behind the immune system and shows what happens when the immune system attacks an allergen mistaking it for something harmful.

The props you will need are as follows:

- A model germ
- A model skull with stick-on face
- 2 Wigs
- Fake skin
- 2 bowls
- Fake mucus
- Feely box
- 2 Knight's helmets
- Model antibodies made of straws & Velcro
- Length of Red felt
- Container of water for hand washing
- Paper Towels
- Laminated sheets saying "Anti" & "histamine"
- Balloons
- Polystyrene balls
- A pin

The model germ:

Our model germ is made from a wooden frame built so that a flat display surface leans slightly back and stands on the ground. The germ is cut out from a piece of red felt and flagella have been added using blue woollen material. The board was painted white and the germ was assembled and glued on using a glue gun. The outside edge of the board is decorated with Biohazard tape.

The model skull:

The model skull (which we call Sammy the Skeleton) is made using black foam as a stand and a piece of thin white foam has been cut into the shape of a skull and stuck on. The skin is made from Creasoft material and is attached to the skull using Velcro.

The black foam has been cut and shaped so that the skull will stand on its own and also so that the wig will fit on top to give Sammy the Skeleton some hair.

This show has been written and developed by W5, Belfast, with a grant from The Wellcome Trust Engaging Science Programme, see <http://www.wellcome.ac.uk/en/1/pinpubscippl.html> for details.

The model antibodies:

The model antibodies are made from 2 bendy drinking straws sellotaped together and spread out at the ends to form a 'Y' shape. The 3 ends are then tipped with Velcro hook tape.

The Gunge:

We use gunge powder from Great Big Resources Ltd, which is mixed with warm water to make a gooey slime. However, you could also use a thin mixture of water, Guar Gum and Sodium Tetraborate (Borax). Anything that feels gooey to touch.

Show Set-Up:

At W5 we have a demonstration bench with a screen behind it to project the slides onto.

A laptop computer is placed on a stool to the left hand side of the demonstration bench.

On top of the demonstration bench is the Feely box at the far left hand side of the bench so that volunteers can reach their hands inside. Inside the box is the piece of rubber 'skin'. A piece of red felt is placed over the box and the wig, a bowl of water and a bowl of gunge is hidden underneath the red felt.

On the right hand side of the bench is the model skull with its 'skin' and wig behind it: a jug of water and paper towels for hand-washing; two knight's helmets and 6 straw antibodies; the laminated sheets saying "Anti" & "histamine"; a pin and a balloon, which has been filled with 6-10 polystyrene balls.

On the floor to the right hand side of the bench is the model germ. The Powerpoint projector is showing the first slide – which is the Noses Are Red title screen.

We also keep the evaluation forms and allergy quizzes on the bench along with a number of pens.

Show Script:

Hello everyone, welcome to W5, my name's Now have any of you got an allergy? Well hopefully by the end of the show you'll understand a bit more about why you get allergies.

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But first another question, have you ever had to take a day off school (or work) with the flu or a tummy bug? Yes, we all get ill sometimes. That's because all around us in the air are millions of tiny, tiny things called germs, which can get inside our bodies and make us ill. But we don't get ill all the time. And that's because your body has a built in protection against those germs called the immune system.

But have a look at my friend over here (*indicate the skull model*) this is Sammy the Skeleton and he doesn't have any immune system at all, he's got no protection from all those germs so he's going to get ill all the time. I'd like some volunteers to help him out and give him some protection.

So who would like to be my first volunteer?

Ok and what's your name? Ok then(*name*), what we have here is a feely box and inside is part of Sammy's immune system, so I'd like you to put your hands in and have a feel and tell me what it feels like.

(Same process for 4 volunteers, after each volunteer give them a round of applause and send them back to their seat and explain a little bit about each item in turn. The 4 items are as follows.....)

Skin – (*A piece of rubber cut from a fancy dress "skinhead" kit*) Our skin is the largest organ in our body and it keeps the germs out. That's why it's very important if you ever get a cut to keep it clean and put a plaster on it in case germs sneak in that way.

Hair – (*A fancy dress wig*) It's not just the hair on our head but also on our arms and legs and even up our nostrils and in our ears. They protect you by trapping dirt and dust and stopping them carrying germs into our bodies. (*Put the wig onto Sammy the skeleton.*)

Saliva & Tears – (*A bowl of water*) Our bodies make watery liquids like our tears, which protect your eyes and have something in them that can kill germs. Your spit, or saliva to give it the proper science name, and sweat also contain something that can kill germs (*enzymes e.g. lysozyme in tears*).

Mucus – Your body makes sticky gooey stuff the scientists call it mucus, but you may know it as snot!! And it's very important because it lines your nose and throat and because it's so sticky it traps germs and stops them getting into your body.

Now normally your mucus will be clear, but if you have an infection it can be green or if you've been in a really dusty place it can even turn black!!

Lets have a big round of applause for all the volunteers.

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But after all this protection we all still get ill occasionally, because germs still manage to get through. And when germs do get into our bodies that's when we need our blood... (*Show slide*)

This is what your blood looks like under a microscope. There are two types of cells in your blood. The red ones at the top are what make your blood look red and they carry stuff around your body, but they don't protect you from germs. It's the ones at the bottom (*of the slide*) the white blood cells that protect you from germs.

Now I need two volunteers to help show you what the white blood cells do. White blood cells are the defenders of the body so they are going to wear these hats to remind you (*Knight's helmets*). The white blood cells make a special weapon called antibodies and they look a bit like this (*Show the straw antibodies*) so you hold these as well, three each. (*Give the volunteers 3 model straw antibodies each.*)

Normally the white blood cells wander round your body looking for germs. When they spot a germ like this one here (*indicate large germ model*), this is what a germ looks like, they throw their antibodies at the germ. So volunteers if you'd like to throw your antibodies at the germ... (*the Velcro will stick to the felt on the germ and the antibodies should stick*). The antibodies are specially designed to stick and pretty soon the germ will be covered. Let's have a big round of applause for my white blood cells... Once the germ is covered another white blood cell comes along – The mast cell (*Pick up the balloon pre-filled with polystyrene balls*). When the mast cell touches the germ this happens... (*Conceal pin in other hand and burst balloon suddenly*) BANG!!!

The mast cell explodes and all of the contents spread out into your blood. One of the things in the mast cells is, a chemical, called histamine. (*Hold up laminated sheet saying "histamine"*.) Histamine spreads out in the blood and calls the reinforcements in to fight the germ and that's how your body can get rid of the germs.

Now I bet you're really impressed with your immune system by now. It's very clever the way it can protect you from germs. But even your immune system can make a bit of a mistake sometimes.

You've already told me that some of you have allergies. Well an allergy happens when your immune system mistakes something harmless for a germ and starts to attack it.

There are lots of things that people can be allergic to. (*Show slides as you talk about these.*)

Peanuts – Lots of people can have very bad reactions to peanuts.

Dust Mites – These things are tiny and live in the dust in your house and can even live inside your pillows!! Some people can be allergic to them.

Pet Hair – They may look cute but some people can be allergic to pet hair and it makes them sneeze.

Nickel – Nickel is a metal, which is used to make watches, belt buckles, zips and jewellery and can give some people a rash.

Shellfish – They may be very tasty, but some people are allergic to types of shellfish.

Pollen – Now this is the big one, especially during the summer months. Pollen is made by flowers and trees and grasses and lots of people are allergic to it. It makes people sneeze and makes your nose runny and your nose and eyes red and sore, people who are allergic to pollen have something called Hayfever.

The most common one is pollen. Pollen is produced by flowering plants and is carried from plant to plant by insects or by the wind and helps to make the seeds for new plants. Unfortunately sometimes it never gets to another plant because it gets up our noses instead!!

What happens, if you have Hayfever, is exactly the same as for the germ, because our immune system makes a mistake and attacks the pollen as if it were a germ. That means that lots of histamine gets released and the histamine calls for reinforcements so the immune system gets to work and lots of immune cells crowd into the area causing your nose and eyes to be swollen, red and itchy. Your body does everything it can to get rid of the pollen like sneezing, eyes watering and making loads of extra mucus.

But the silly thing is that the pollen is actually harmless it won't make you ill, but your body makes a mistake and thinks it's a germ. It is the histamine rather than the pollen that causes the symptoms of an allergy.

That's why if you go to the doctors with bad hayfever they may give you a tablet called ANTIHISTAMINES because it stops the histamine working and so cures the symptoms, but it can't cure the allergy itself.

Thanks for watching the show. Enjoy the rest of your day here at W5.

Appendix 1 – COSHH ASSESSMENTS

COSHH ASSESSMENT FORM		
1. Assessor: David Thomas	2. Date 19/06/2004	3. Location Go demo area level 2
4. Brief Description of Use: Used to make gunge which volunteers will put their hands into during the show.		
5. Personnel involved: Staff of education team		
6. Substances used: Gunge Powder (www.gungetheboss.com)		
7. Form (solid, liquid, gas): Solid	8. Quantity used: 3 ml	
9. Hazard Description (e.g. irritant, corrosive, harmful etc.): Non-hazardous		
10. Control Measures Used: Ask volunteers whether they have any allergies before they come into contact with the gunge. Get volunteers to wash their hands immediately after touching the gunge.		
11. Storage and Transportation of Substances: Stored in sealed plastic container in the demo area.		
12. Spillage Procedure: Brush up or mop up if wet. Avoid using water.		
13. First Aid: In case of allergic reaction refer to their GP. If swallowed drink plenty of water.		