This work was funded by Sanofi, but they had no input into the content or creative development.

Instructions/top-tips for the use of this resource:

- For optimum user experience, please view this slide deck in **presentation mode**
- You will **not be able to use the usual keyboard/mouse functions to advance**. Instead, interactive buttons will **guide you** through the presentation:

Click on the pulsating icons to uncover more information

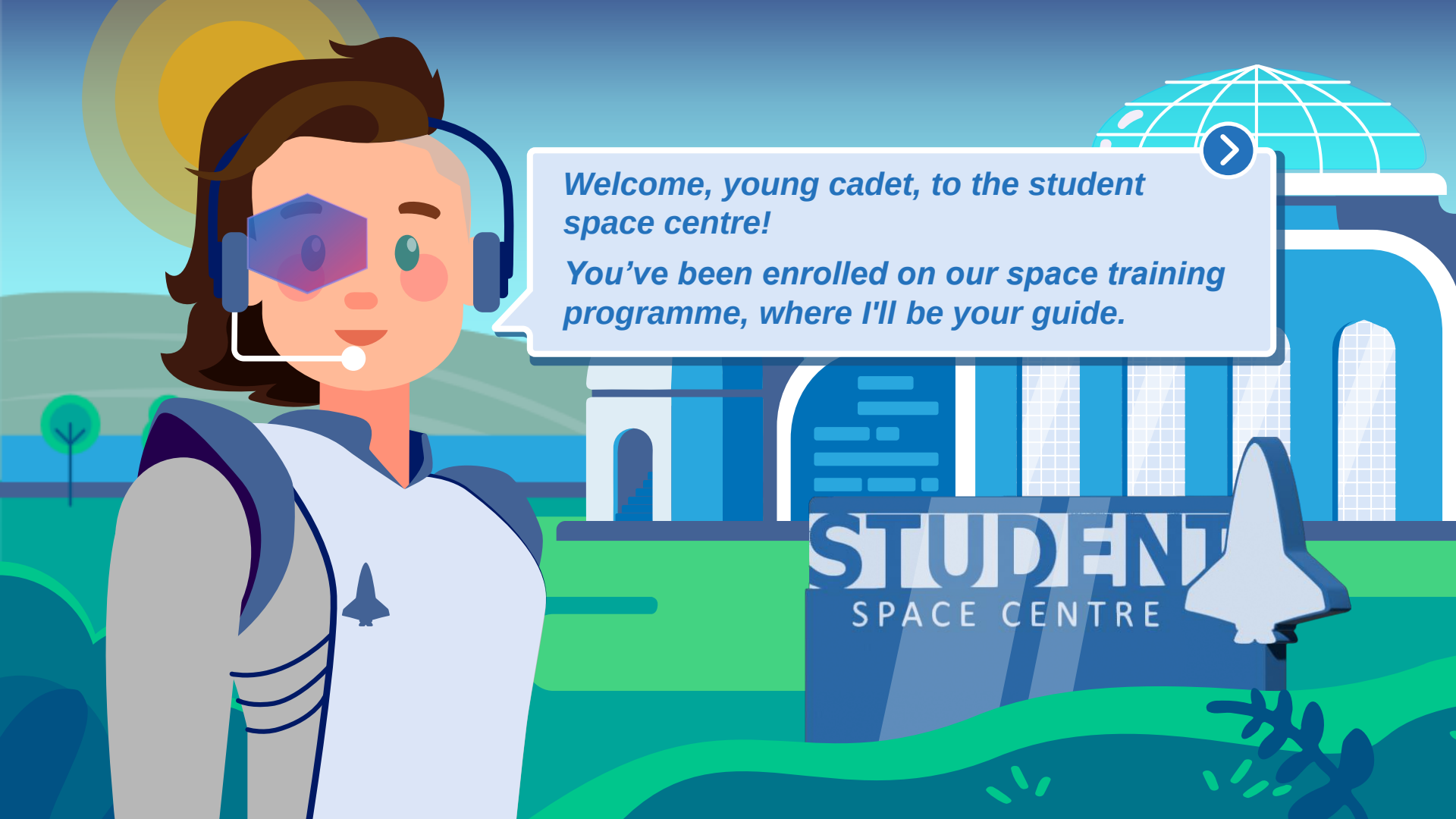
Navigate between slides **using the arrow buttons** at the bottom right of the screen

Click this arrow to **reveal more information**/receive further instructions

- At the end of the lesson, students will be able to **scan a QR code** to **download their 'mission certificate',** consolidating all the valuable information they have learnt
  - If you would like to **print this infographic** for your students, or **use the resource separately**, a **printer-friendly version** can be found here: http://tago.ca/TakeHomeA4

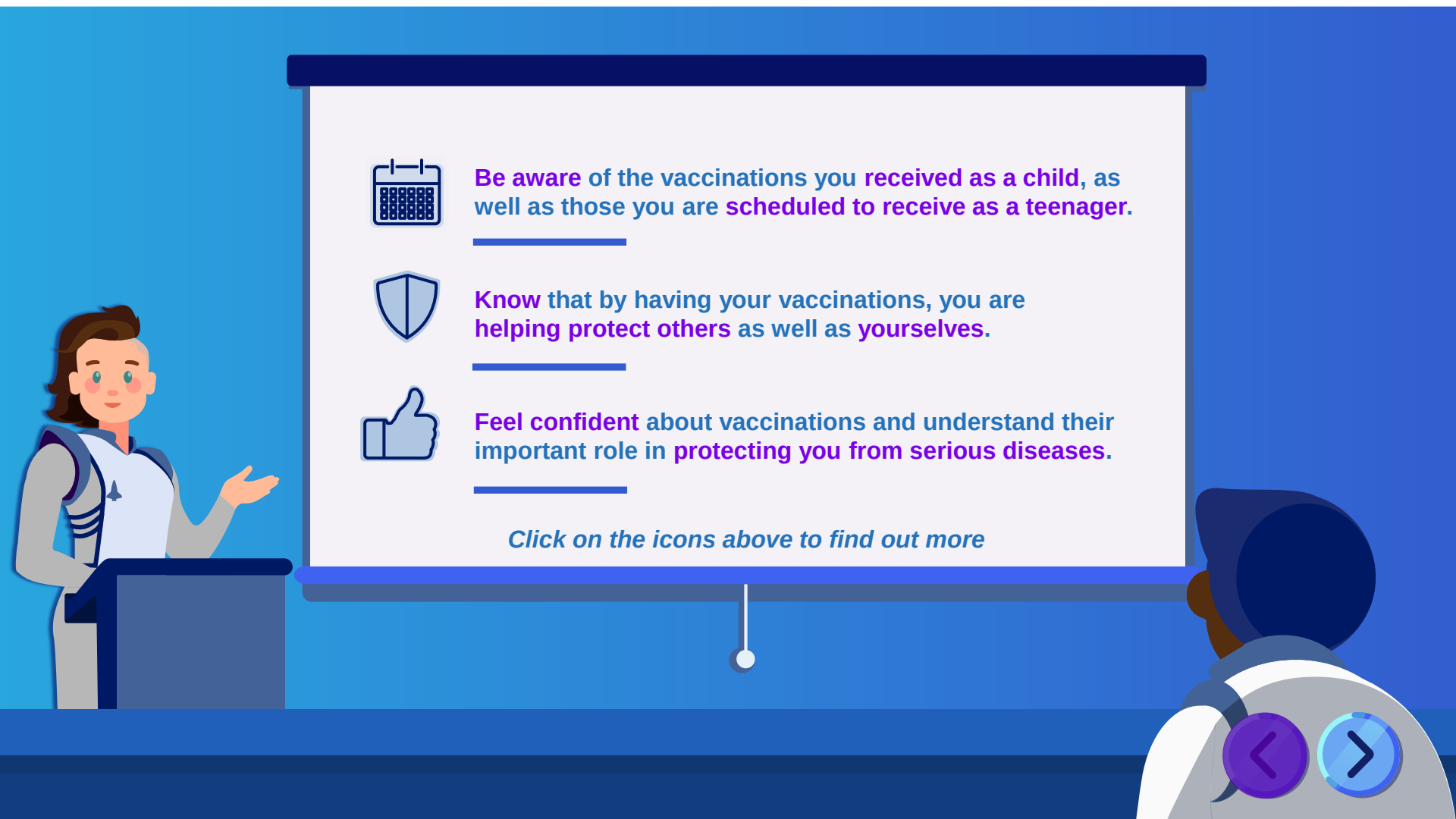
LAUNCH THE LESSON

This work was funded by Sanofi, but they had no input into the content or creative development.


Welcome, young cadet, to the student space centre!
You've been enrolled on our space training programme, where I'll be your guide.
STUDENT
SPACE CENTRE


Upon completion of initial training, you will be sent on a perilous mission to dangerous new worlds.
Are you up to the challenge?
CONTINUE


There are many things you will learn in this programme.
By the end of your mission training, you should…


Be aware of the vaccinations you received as a child, as well as those you are scheduled to receive as a teenager.
Know that by having your vaccinations, you are helping protect others as well as yourselves.
Feel confident about vaccinations and understand their important role in protecting you from serious diseases.
Click on the icons above to find out more

What are vaccines?

A vaccine is a type of medicine that doesn't make you better. Instead, it keeps you from getting sick in the first place.

It does this by teaching your body to fight off germs like viruses and bacteria.[1]

Vaccines protect you by giving you a tiny amount of a live germ, or by giving you a version of the germ that is dead.

Your body will do the rest of the work.[2]

1. How to Explain Vaccines to Children. Available at: https://www.parents.com/health/coronavirus/how-to-explain-vaccines-to-kids/ (accessed 05 June 2023);
2. A Kid's Guide to Shots. Available at: https://kidshealth.org/en/kids/guide-shots.html (accessed 05 June 2023).

Click on the icons to find out more

Types of vaccines?

Inactivated vaccines:

Use the killed version of the germ that causes a disease. These don't usually provide protection that's as strong as live vaccines, so you may need several doses over time to get ongoing immunity against a disease.

Live-attenuated vaccines:

Use a weakened form of the germ that causes a disease. These vaccines are like the natural infection they help to prevent, so they create a strong and long-lasting immune response, and just 1 or 2 doses can provide lifetime protection.

NHS. Why vaccination is safe and important. Available at: https://www.nhs.uk/conditions/vaccinations/why-vaccination-is-safe-and-important/ (accessed 6 June 2023).

Click on the icons to find out more

Why do we need vaccines?

Immunisation currently prevents **3.5–5 million deaths** every year.

There are now vaccines to prevent more than **20 life-threatening diseases**, which helps people of all ages to **live longer, healthier lives**.

WHO. Vaccines and Immunization – Overview. Available at: https://www.who.int/health-topics/vaccines-and-immunization#tab=tab_1 (accessed June 2023).

Click on the icons to find out more

You may need vaccines to allow you to travel.

Not all vaccinations are needed in the UK, and you may only require certain ones when travelling to areas of high risk in other countries.[1]

You may be more at risk if you are travelling to rural areas, backpacking, staying in hostels or camping or going on a longer trip rather than a package holiday.[2]

1. WHO. Vaccines and Immunization – Impact. Available at: https://www.who.int/health-topics/vaccines-and-immunization#tab=tab_2 (accessed June 2023);
2. NHS. Travel vaccinations. Available at: https://www.nhs.uk/conditions/travel-vaccinations/ (accessed June 2023).

Click on the icons to find out more

Vaccinations have protected you since you were a baby.

In the UK, you have your very first vaccines when you are just **8 weeks old**, and these continue throughout your life.[1,2]

1. NHS. NHS vaccinations and when to have them. Available at: https://www.nhs.uk/conditions/vaccinations/nhs-vaccinations-and-when-to-have-them/ (last accessed March 2023);
2. UKHSA. Guidance - Complete routine immunisation schedule. Available at: https://www.gov.uk/government/publications/the-complete-routine-immunisation-schedule (last accessed March 2023).

Click on the timeline to find out more →

8 weeks[1,2]
- 6-in-1
- Rotavirus
- Meningitis B

12 weeks[1,2]
- 6-in-1
- Rotavirus
- PCV

16 weeks[1,2]
- 6-in-1
- Meningitis B

1 year[1,2]
- Hib/Meningitis C
- MMR
- PCV
- Meningitis B

3 years and 4 months[1,2]
- MMR
- 4-in-1

2–16 years[1–3]
- Annual flu

Teenage[1,2]
- HPV (12–13 years)
- 3-in-1 (14 years)
- Meningitis ACWY (14 years)

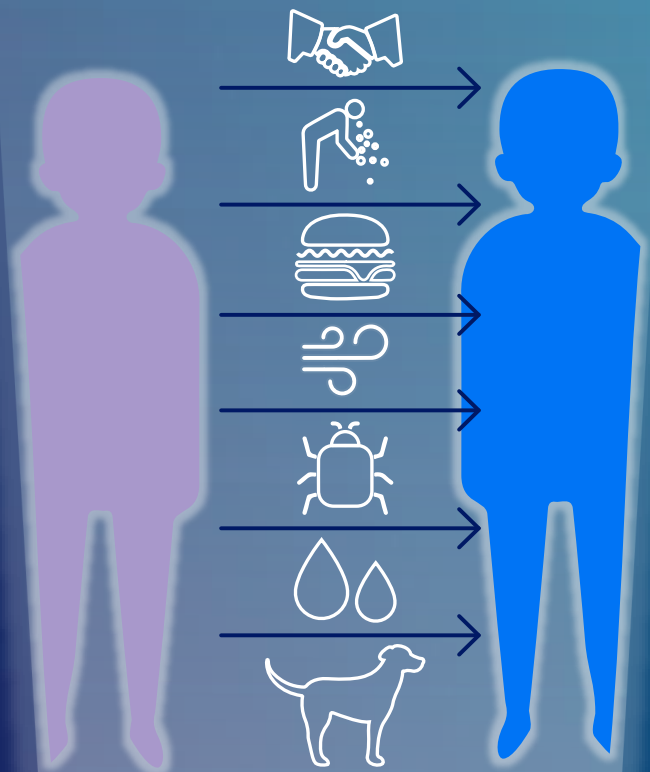
Vaccinations have protected you since you were a baby.

Your teenage vaccinations are **just as important** as those you have received in your life so far.

As a teenager you are **vaccinated against HPV** and **Meningitis ACWY**, and given boosters of your protection against **tetanus**, **diphtheria** and **polio**, which you were first vaccinated against as a baby. You will also receive yearly vaccinations **against flu**.[1,2]

You may also be offered other vaccinations, to keep you up to date, or as **new vaccination programmes are introduced**.

1. NHS. NHS vaccinations and when to have them. Available at: https://www.nhs.uk/conditions/vaccinations/nhs-vaccinations-and-when-to-have-them/ (last accessed March 2023);
2. UKHSA. Guidance - Complete routine immunisation schedule. Available at: https://www.gov.uk/government/publications/the-complete-routine-immunisation-schedule (last accessed March 2023);
3. UKHSA (PR). All secondary school pupils eligible for free flu vaccine. Available at: https://www.gov.uk/government/news/all-secondary-school-pupils-eligible-for-free-flu-vaccine#:~:text=All%20secondary%20school%20pupils%20in,follow%20at%20a%20later%20date (last accessed July 2023).



How are diseases passed amongst people?

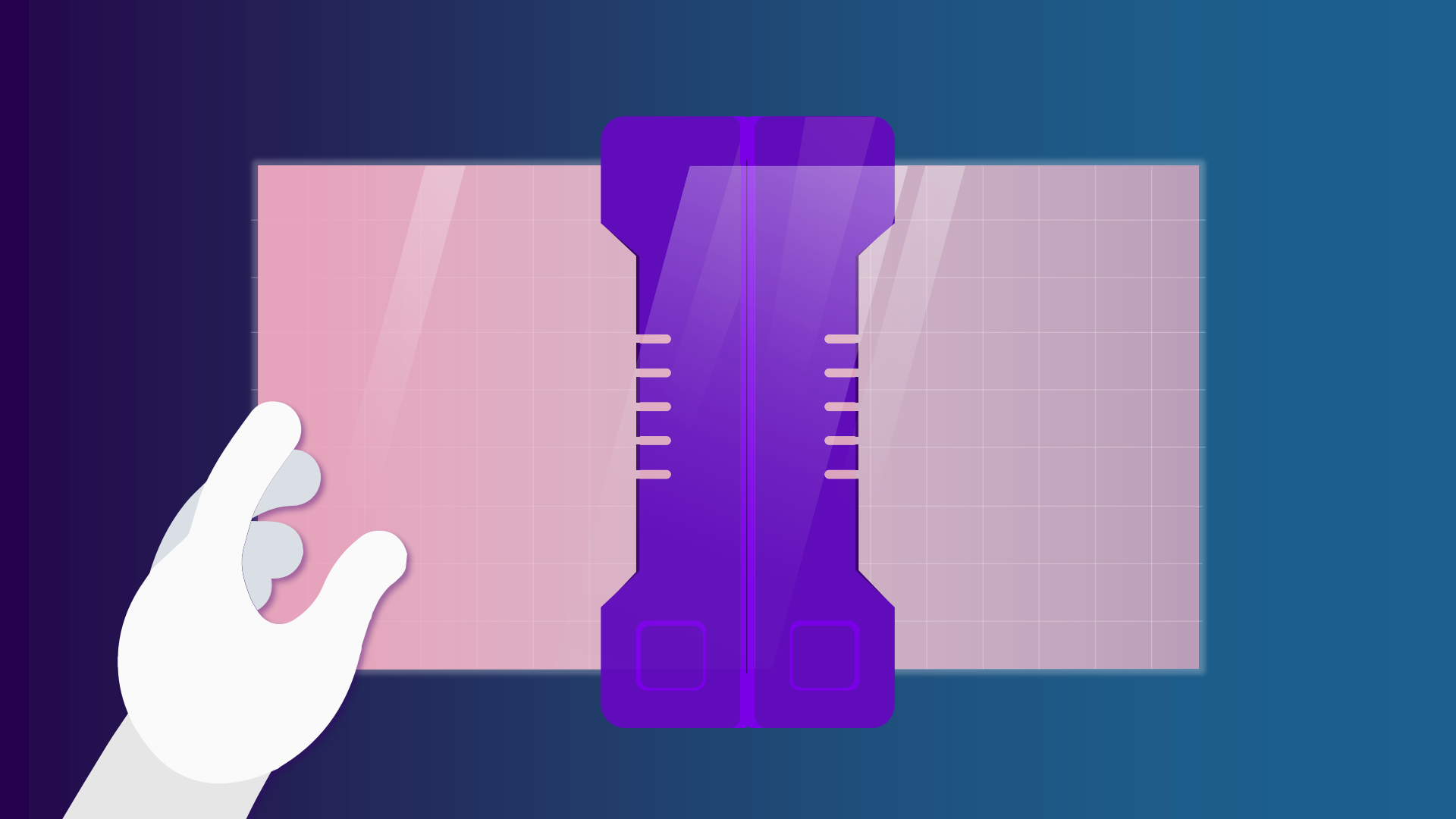
Diseases can be transmitted by:

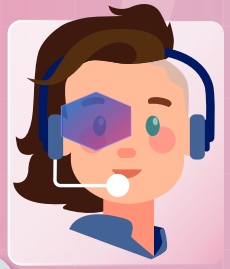
- Direct contact
- Indirect contact
- Food
- Water
- Air
- Insect
- Rabid animal

CONTINUE

1. NHS. NHS vaccinations and when to have them. Available at: https://www.nhs.uk/conditions/vaccinations/nhs-vaccinations-and-when-to-have-them/ (last accessed March 2023);
2. UKHSA. Guidance - Complete routine immunisation schedule. Available at: https://www.gov.uk/government/publications/the-complete-routine-immunisation-schedule (last accessed March 2023);
3. UKHSA (PR). All secondary school pupils eligible for free flu vaccine. Available at: https://www.gov.uk/government/news/all-secondary-school-pupils-eligible-for-free-flu-vaccine#:~:text=All%20secondary%20school%20pupils%20in,follow%20at%20a%20later%20date (last accessed July 2023).


Congratulations on completing initial training!
To commemorate your success, I present to you your very own Portable Navigation Device (PND).

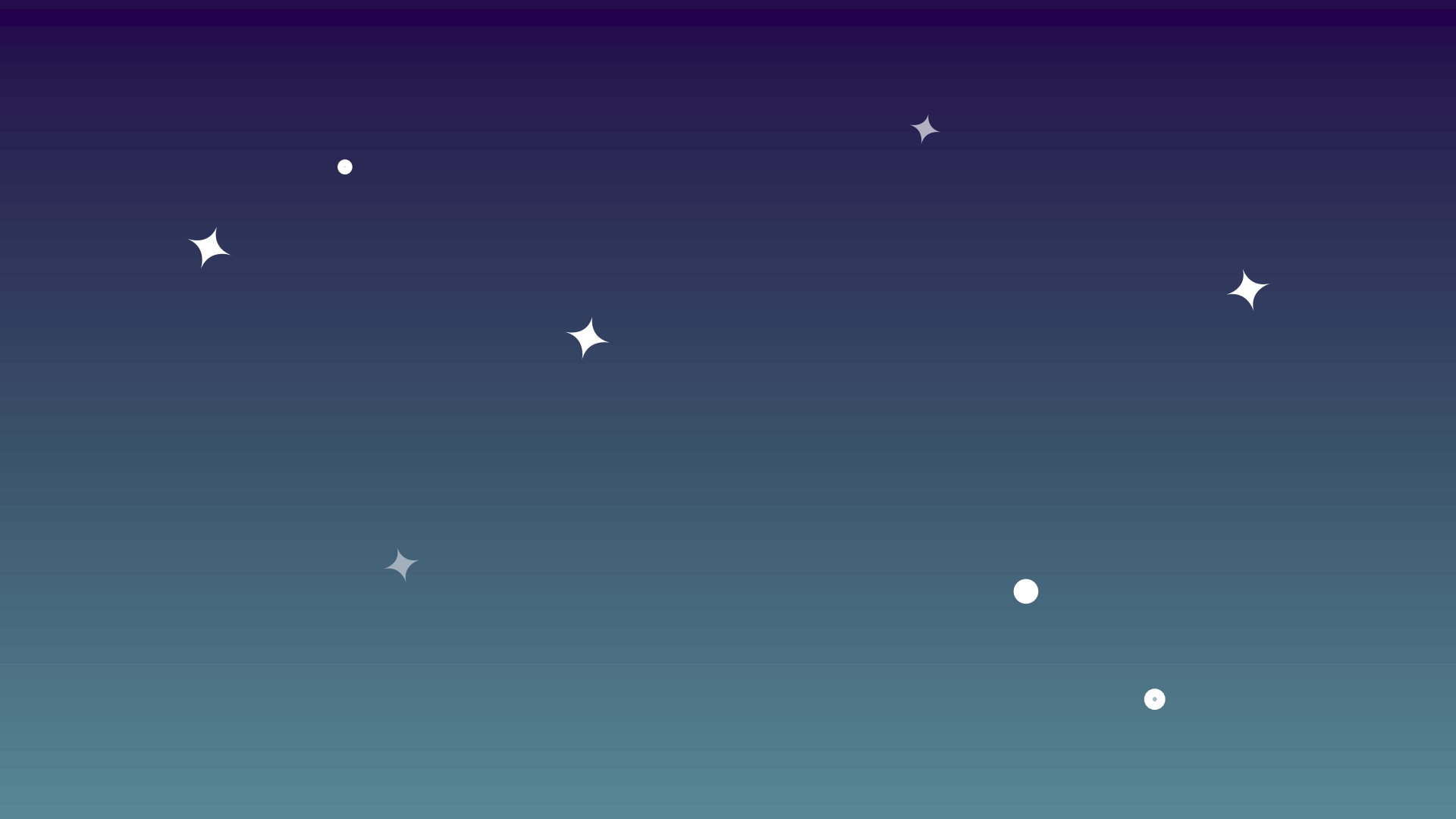


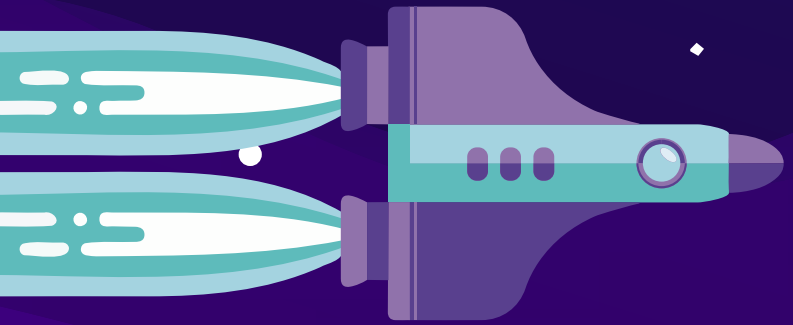


Congratulations, cadet! This is your very own Portable Navigation Device (PND).

Not only will it keep you in communication with mission control, but it will also help you reveal info and uncover secrets on your journey!


Blast off in...
...3, 2, 1!





Navigate through space with the arrow buttons. Click on the planets you encounter to visit them and find out more information.


Navigate through space with the arrow buttons. Click on the planets you encounter to visit them and find out more information.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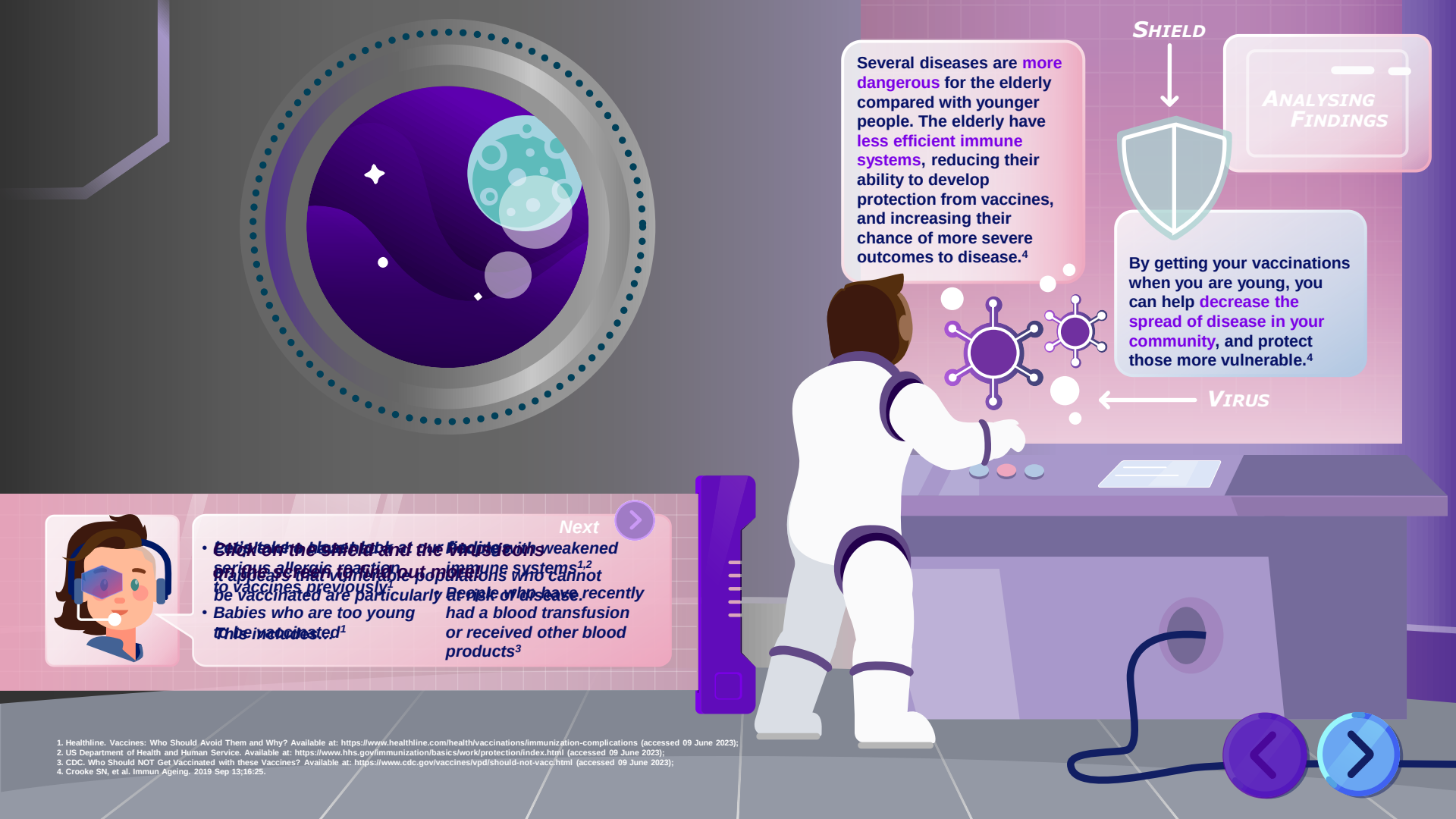
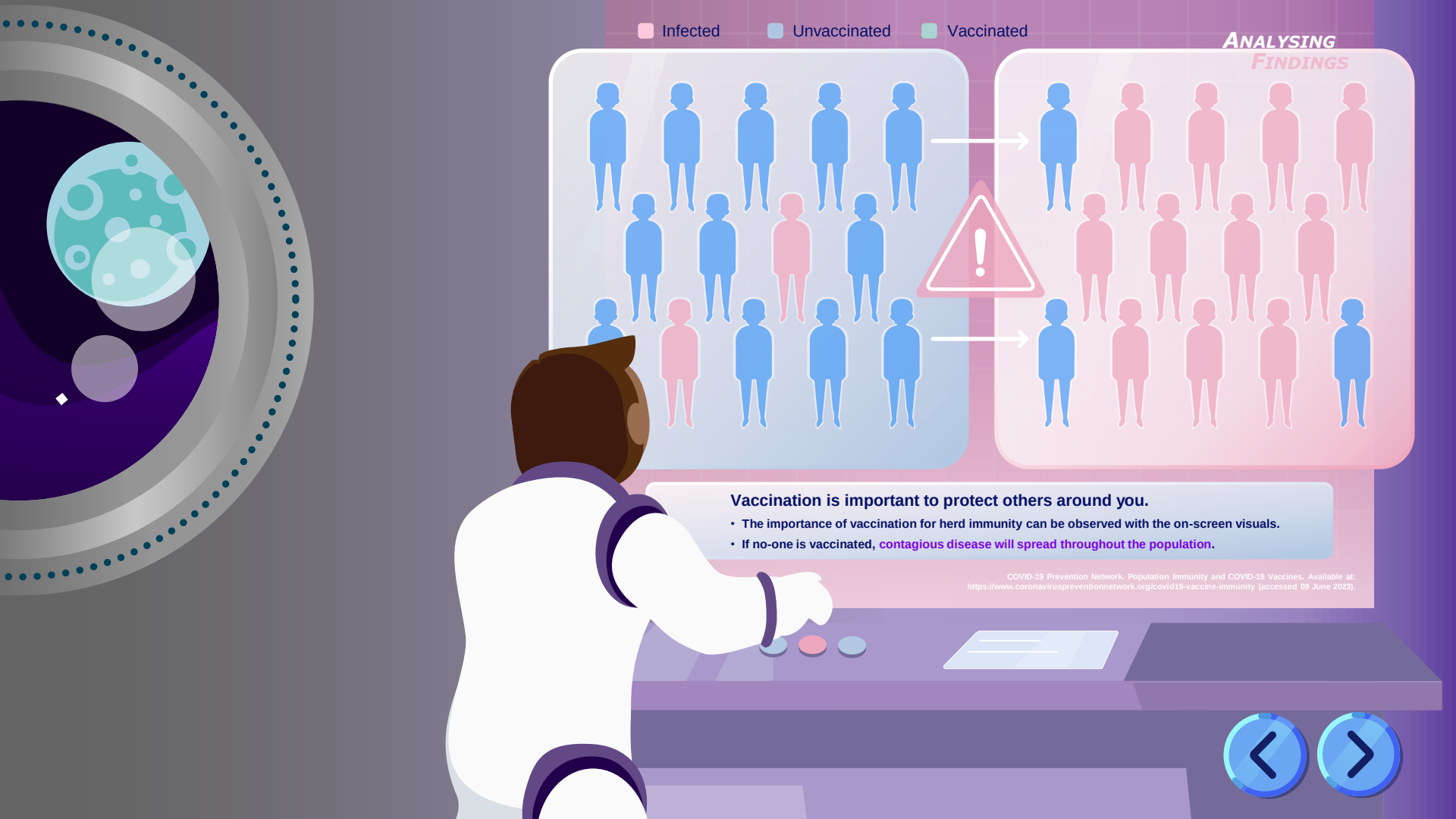
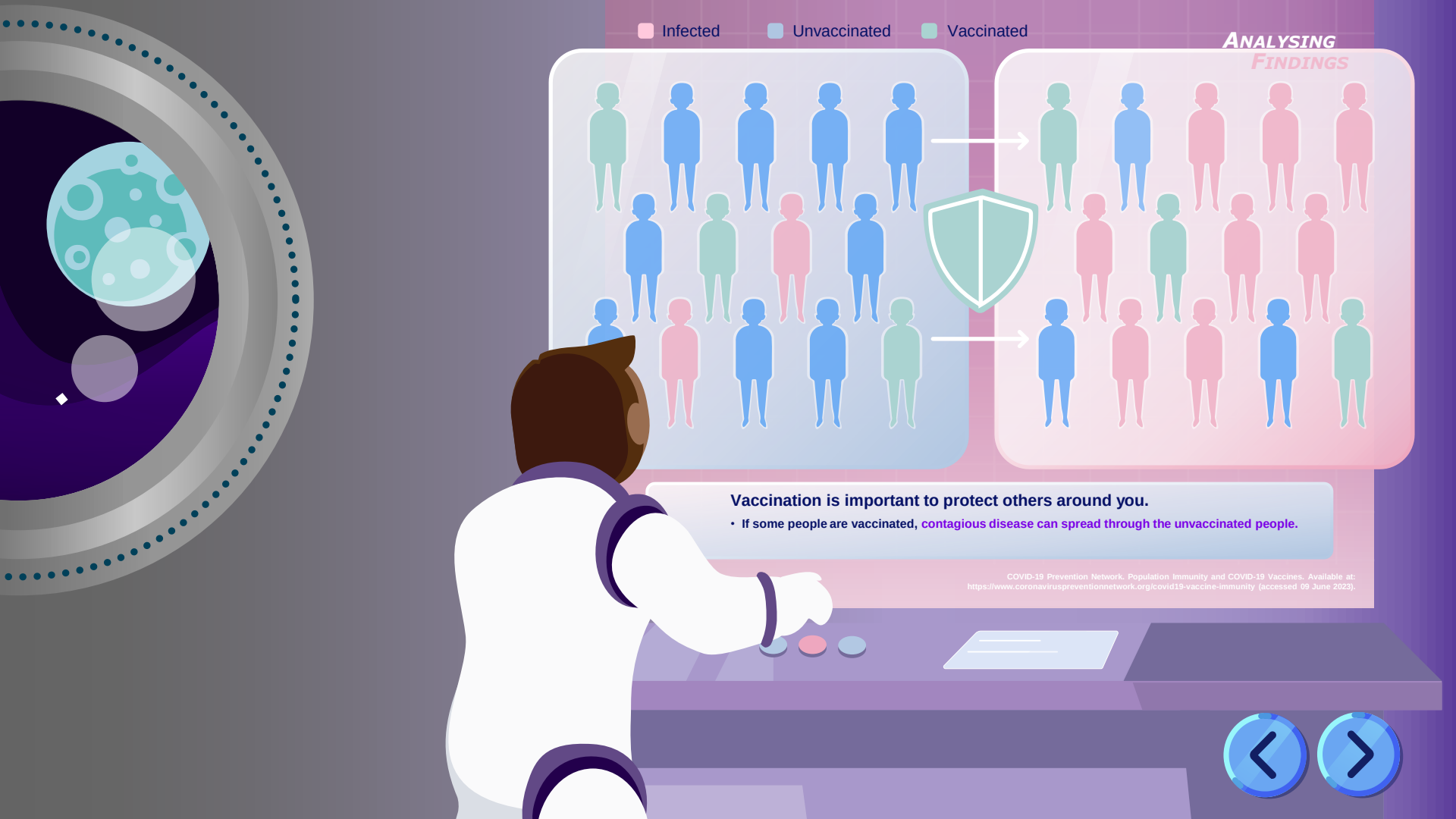
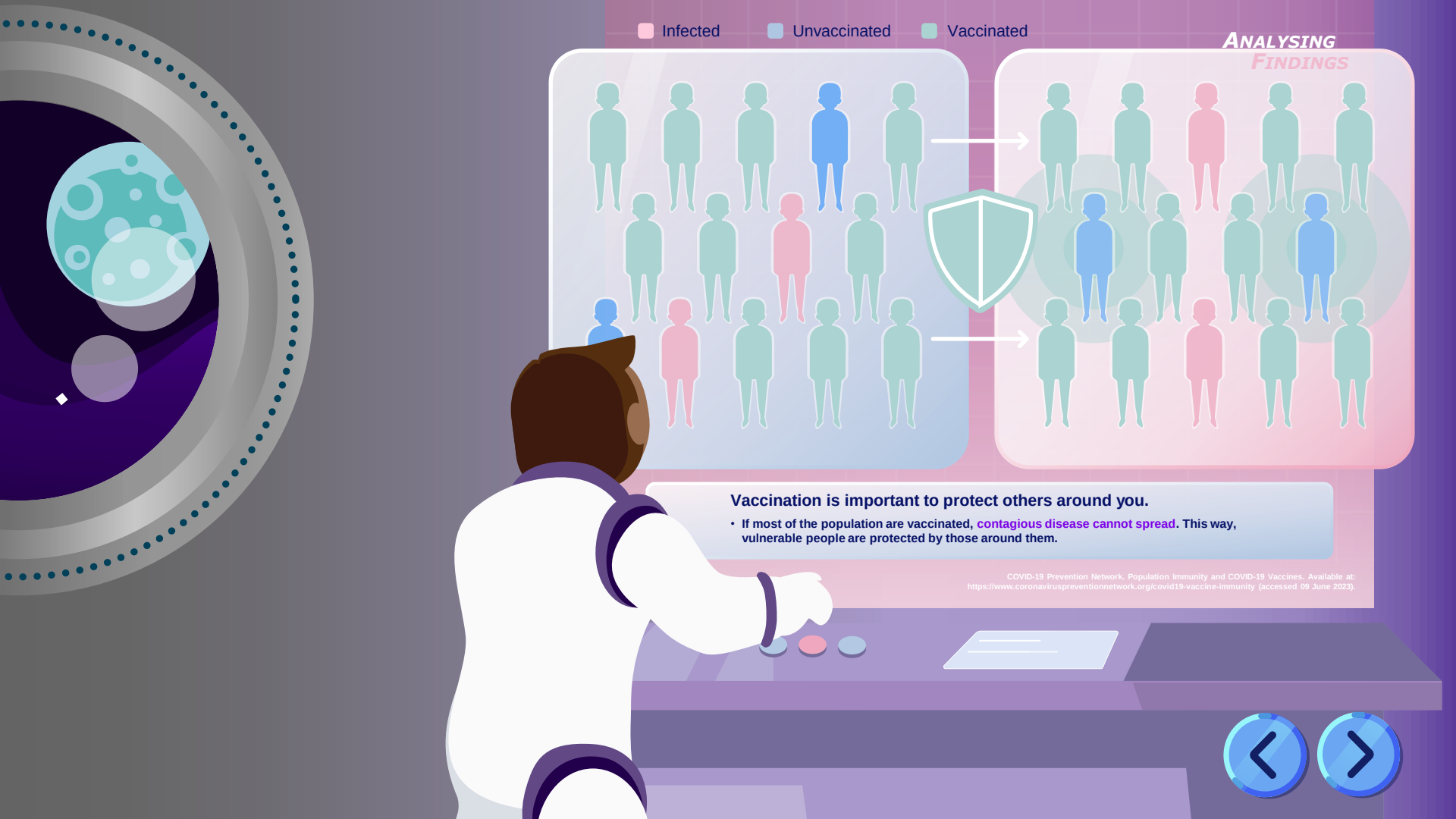


1. Healthline. Vaccines: Who Should Avoid Them and Why? Available at: https://www.healthline.com/health/vaccinations/immunization-complications (accessed 09 June 2023);
2. US Department of Health and Human Service. Available at: https://www.hhs.gov/immunization/basics/work/protection/index.html (accessed 09 June 2023);
3. CDC. Who Should NOT Get Vaccinated with these Vaccines? Available at: https://www.cdc.gov/vaccines/vpd/should-not-vacc.html (accessed 09 June 2023);
4. Crooke SN, et al. Immun Ageing. 2019 Sep 13;16:25.


Infected
Unvaccinated
Vaccinated
ANALYSING FINDINGS
Vaccination is important to protect others around you.
• The importance of vaccination for herd immunity can be observed with the on-screen visuals.
• If no-one is vaccinated, contagious disease will spread throughout the population.
COVID-19 Prevention Network. Population Immunity and COVID-19 Vaccines. Available at: https://www.coronavirusprevention network.org/covid19-vaccine-immunity (accessed 09 June 2023).


Infected
Unvaccinated
Vaccinated
ANALYSING FINDINGS
Vaccination is important to protect others around you.
• If some people are vaccinated, contagious disease can spread through the unvaccinated people.
COVID-19 Prevention Network. Population Immunity and COVID-19 Vaccines. Available at: https://www.coronavirusprevention network.org/covid19-vaccine-immunity (accessed 09 June 2023).


Infected
Unvaccinated
Vaccinated
ANALYSING
FINDINGS
Vaccination is important to protect others around you.
• If most of the population are vaccinated, contagious disease cannot spread. This way, vulnerable people are protected by those around them.
COVID-19 Prevention Network. Population Immunity and COVID-19 Vaccines. Available at: https://www.coronavirusprevention network.org/covid19-vaccine-immunity (accessed 09 June 2023).

What are the consequences of not getting vaccinated?
Impact on the individual.

Risk of **decreasing life expectancy**.

Children will be more likely to get **serious illnesses**, making them more likely to get other **health problems**.

Travel restrictions —
Several countries require foreign visitors to be completely vaccinated.

Decrease in quality of life —
Vaccine-preventable disease could lead to lifelong disability, such as paralysis or blindness.

Click on the icons to find out more

ANALYSING FINDINGS

UNICEF. 7 consequences and risks of not getting your child routinely vaccinated. Available at: https://www.unicef.org/indonesia/stories/7-consequences-and-risks-not-getting-your-child-routinely-vaccinated. (accessed 7 June 2023).

What are the consequences of not getting vaccinated?

Impact on the wider community and healthcare systems.

The NHS has to bear the cost of treatment for the disease and any associated complications.

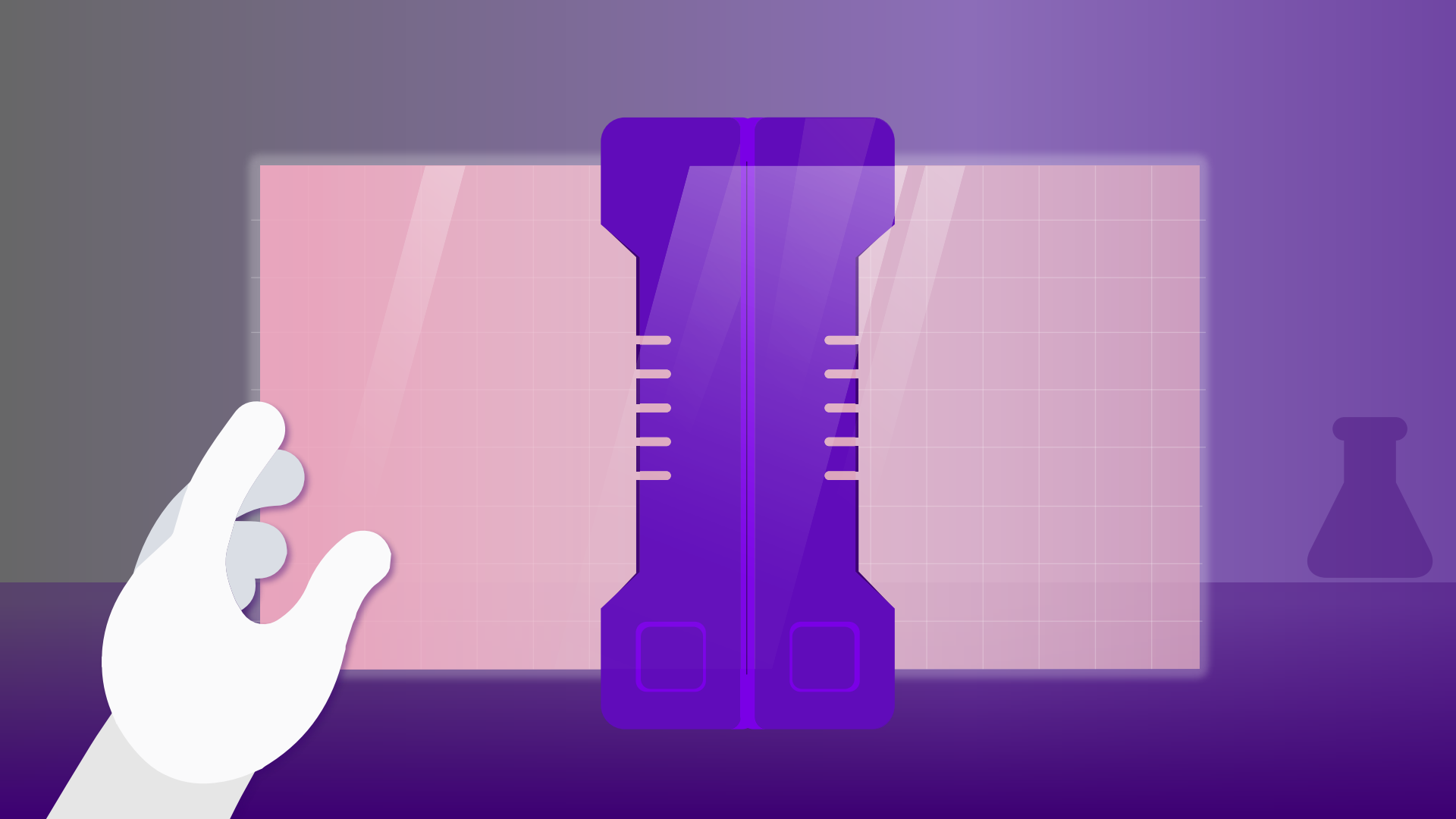
Other family members are also more likely to get seriously ill and can infect people of all ages who cannot be vaccinated for medical reasons.

Disease outbreak in the community — Vaccine-preventable diseases can spread in populated areas (schools, hospitals etc).

ANALYSING FINDINGS

Click on the icons to find out more

UNICEF. 7 consequences and risks of not getting your child routinely vaccinated. Available at: https://www.unicef.org/indonesia/stories/7-consequences-and-risks-not-getting-your-child-routinely-vaccinated. (accessed 7 June 2023);



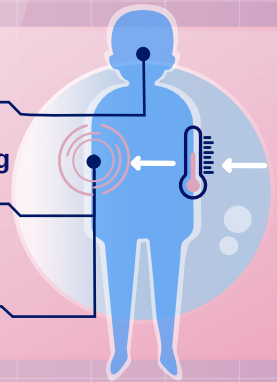
Vaccination side effects and why they can happen.

Like any medicine, vaccines may cause side effects, but receiving a vaccination is still far safer than getting the disease instead.[1]

Low-grade fever

Soreness/swelling at injection site

Redness at injection site



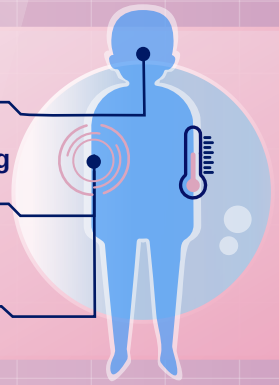
Click on the icons to find out more

1. TeensHealth. Vaccine Basics. Available at: https://kidshealth.org/en/teens/immunizations.html (accessed 6 June 2023);
2. NHS inform. Side effects of the coronavirus vaccines. Available at: https://www.nhsinform.scot/covid-19-vaccine/side-effects-of-the-coronavirus-vaccines#:~:text=It's%20normal%20to%20experience%20side,only%20a%20day%20or%20two (accessed 6 June 2023);
3. MSKCC. COVID-19 Vaccine Side Effects: Why They Happen and how to Treat Them. Available at: https://www.mskcc.org/coronavirus/second-dose-covid-19-vaccine-side-effects-why-they-happen-how-treat-them (accessed 6 June 2023).

Vaccination side effects and why they can happen.

If you do experience side effects, they are **usually mild** and can be managed with painkillers such as **ibuprofen** or **paracetamol** (remember to check with a parent or caregiver before taking any medication).[1]

- **Low-grade fever**
- **Soreness/swelling at injection site**
- **Redness at injection site**



1. TeensHealth. Vaccine Basics. Available at: https://kidshealth.org/en/teens/immunizations.html (accessed 6 June 2023);
2. NHS inform. Side effects of the coronavirus vaccines. Available at: https://www.nhsinform.scot/covid-19-vaccine/side-effects-of-the-coronavirus-vaccines#:~:text=It's%20normal%20to%20experience%20side,only%20a%20day%20or%20two (accessed 6 June 2023);
3. MSKCC. COVID-19 Vaccine Side Effects: Why They Happen and how to Treat Them. Available at: https://www.mskcc.org/coronavirus/second-dose-covid-19-vaccine-side-effects-why-they-happen-how-treat-them (accessed 6 June 2023).

Vaccination side effects and why they can happen.

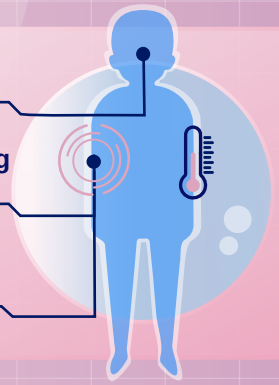
It is normal to experience side effects after a vaccine. It shows the vaccine is teaching your body's immune system how to protect itself from the disease.[2]

Think of it this way: **The body's response to the vaccine is like a training mission for the real fight.**[3]

Low-grade fever

Soreness/swelling at injection site

Redness at injection site



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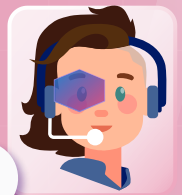
3. MSKCC. COVID-19 Vaccine Side Effects: Why They Happen and how to Treat Them. Available at: https://www.mskcc.org/coronavirus/second-dose-covid-19-vaccine-side-effects-why-they-happen-how-treat-them (accessed 6 June 2023).

The protection your upcoming vaccines will provide you with outweighs the potential for side-effects.



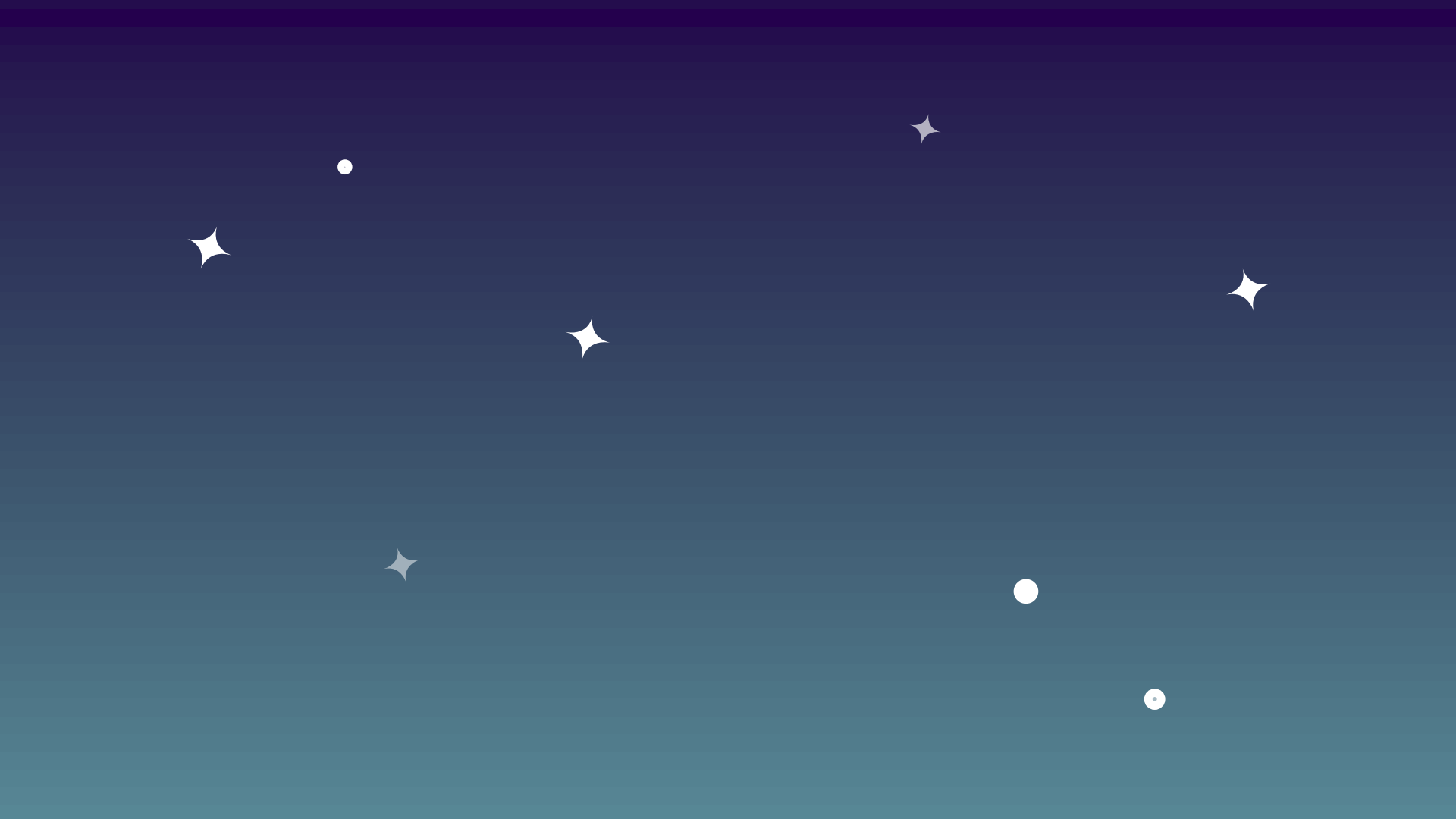
Here's an overview of the most common side effects of the HPV and MenACWY vaccines:[1,2]

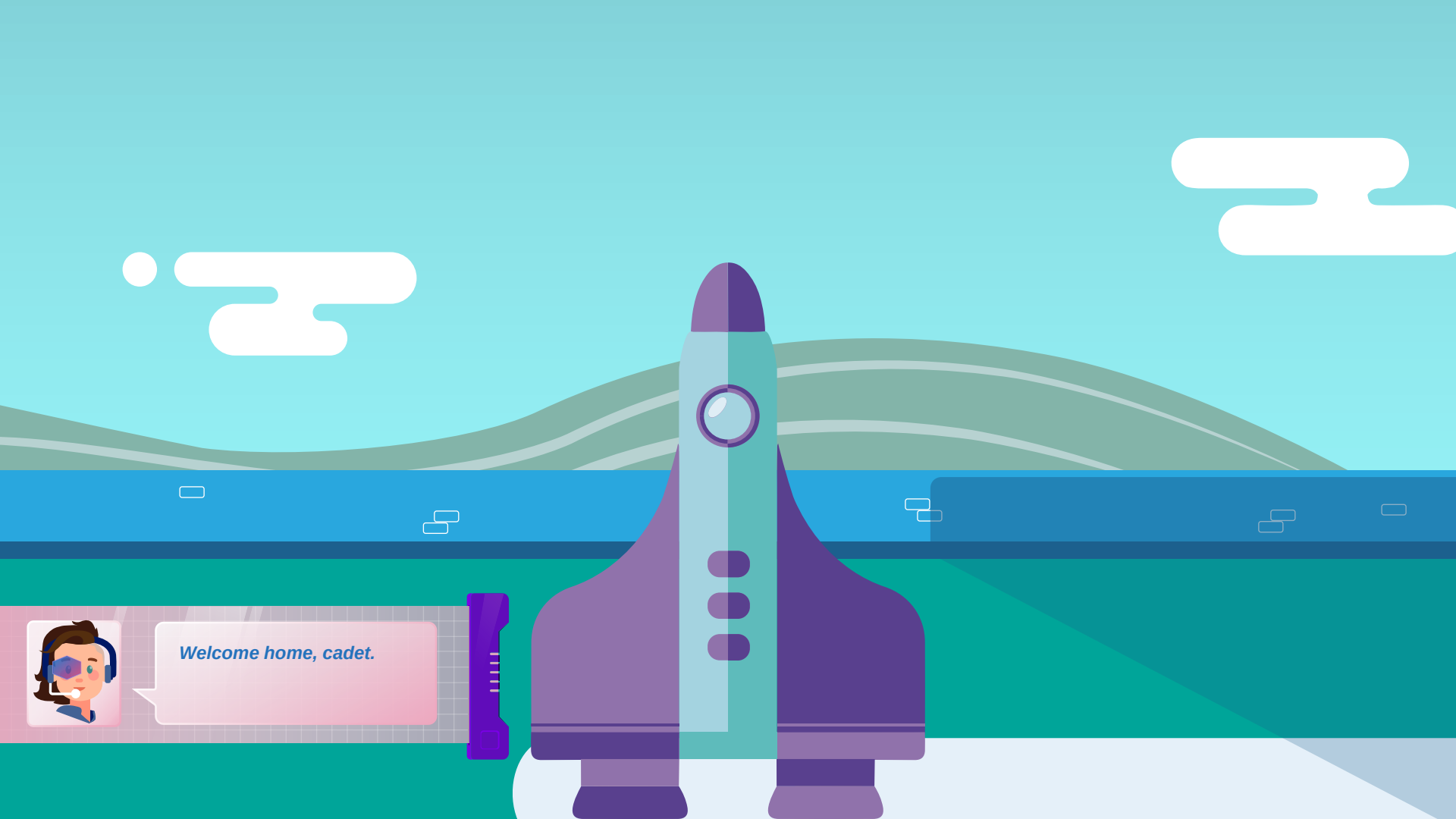
- Injection site reaction
- High temperature
- Headache
- Aching body
- Dizziness
- Tiredness (fatigue)
- Feeling sick (nausea)

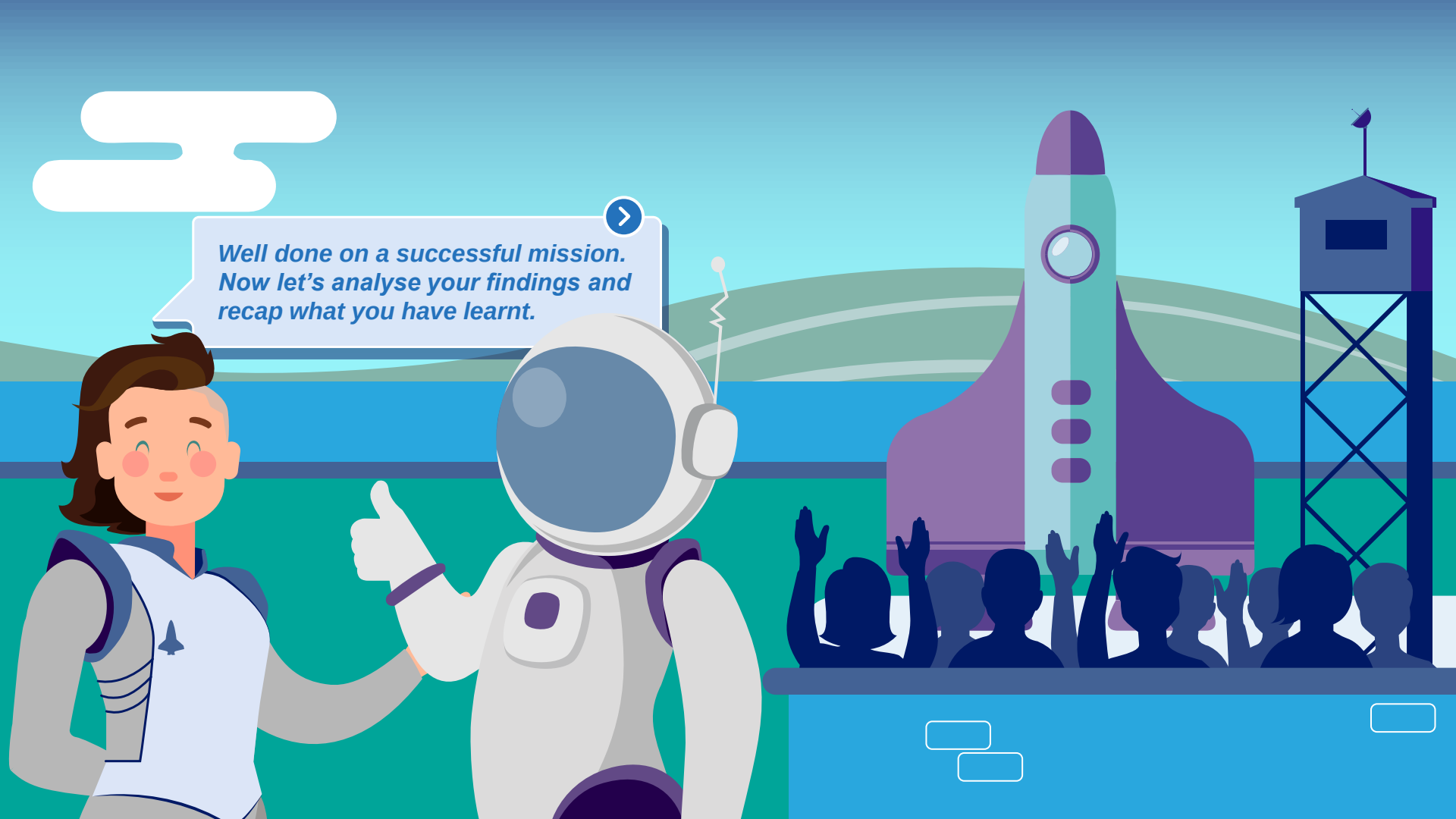
Click on the icons to find out more

1. NHS. HPV vaccine. Available at: https://www.nhs.uk/conditions/vaccinations/hpv-human-papillomavirus-vaccine/. Accessed August 2023;
2. NHS. MenACWY vaccine overview. Available at: https://www.nhs.uk/conditions/vaccinations/men-acwy-vaccine/. Accessed August 2023.

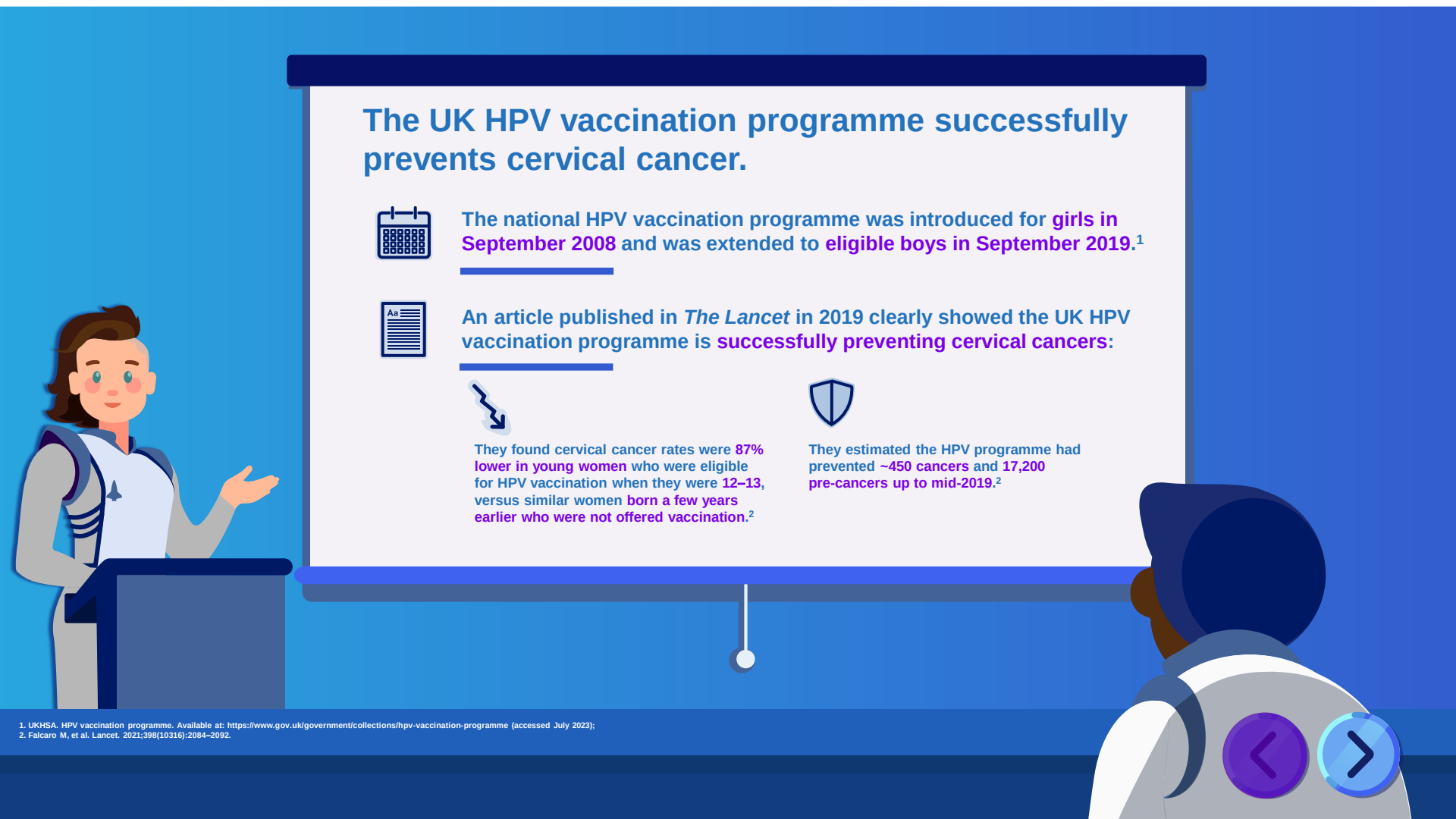

PLANET HOME
CLICK ON THE PLANET
Well done on a successful mission, cadet! Click on Planet Home to return to Earth.




Welcome home, cadet.


Well done on a successful mission. Now let's analyse your findings and recap what you have learnt.


Let’s explore our findings and learn more about the success of our vaccination programmes.
ACCOMPLISHED



1. UKHSA. HPV vaccination programme. Available at: https://www.gov.uk/government/collections/hpv-vaccination-programme (accessed July 2023);
2. Falcaro M, et al. Lancet. 2021;398(10316):2084–2092.

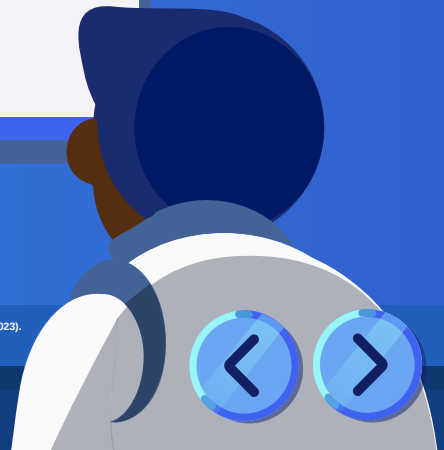
The introduction of the MenACWY vaccine in 2015 reduced the carriage of bacteria among young people in the community.

Before 2015, teenagers in the UK were only vaccinated against **one type of meningococcal disease, meningitis C**.

In 2015, the MenACWY vaccine was introduced, allowing young people to be vaccinated against **4 of the 5 main groups of meningitis-causing bacteria**.

Introduction of the MenACWY vaccine **successfully reduced the number of teenagers carrying these additional bacteria** (known as carriage), which is essential for preventing the spread of disease.

REMEMBER, meningitis is **extremely deadly** and can result in **fatality within 24 hours,** so preventing the spread of disease among the community is vital to saving lives.



University of Oxford. MenACWY teenage meningitis vaccine programme drives herd immunity across all ages. Available at: https://www.ox.ac.uk/news/2022-10-07-menacwy-teenage-meningitis-vaccine-programme-drives-herd-immunity-across-all-ages (last accessed July 2023).

Top tips for your vaccination day!

- If possible, wear short sleeves as you'll be having your injections in your arm.[1,2]
- Make sure you have something to eat and drink before and after you've had your vaccination.[2]
- It's OK to be nervous, but make sure to speak to your healthcare professional about any questions or concerns you have — they will be able to answer these and help reassure you about your vaccination.[1]
- Slowly breathe in through your nose and then out through your mouth. You could also try counting to 5 — the injection is quick and will be over before you know it![2]

1. NHS. Vaccination tips for parents – things you can do on the day. Available at: https://www.nhs.uk/conditions/vaccinations/vaccination-appointment-tips-for-parents/ (last accessed July 2023);
2. Health for Teens. Top tips for immunization day. Available at: https://www.healthforteens.co.uk/health/immunisation/top-tips-for-immunisation-day/ (last accessed July 2023).


Well done on a successful mission!
Scan the QR code or follow the URL below to access your mission certificate recapping what you have learnt today.
A printer friendly version of the mission certificate can be found here: http://tago.ca/TakeHomeA4