BRONZE LEVEL

CREST AWARDS

Resource pack

DISEASE, DEVELOPMENT AND DIAGNOSTICS

COLLECTION

Managed by

BRITISH SCIENCE ASSOCIATION

In partnership with

wellcome centre human genetics

NUFFIELD DEPARTMENT WOMEN'S & REPRODUCTIVE HEALTH

UNIVERSITY OF OXFORD

Contents

How to run CREST using these activities

Preparation

Ready to get going with CREST? Enter your students' Awards by signing up for a CREST account here: crestawards.org/sign-in

Create a new Bronze CREST Award project with the name of the student and the title of their project. If you don't have all the details, you can fill these in later.

Run the project

We have some super handy workbooks and profiles for your students to use when running a CREST Award. The profile is ideal for students who need less support, while the workbook provides some scaffolding to walk students through the project.

Encourage your students to use the workbook or profile to plan and carry out their projects, keeping a record of all their amazing progress. Students only need to complete one! Make sure you consider safety and risks. There is also a handy teacher guide.

Reflection

Once your students have completed their CREST projects, don't let that be the end of their learning. They should now fill in any remaining sections of their workbook or profile. This is a chance for them to reflect on all the interesting things they've learnt and the invaluable skills they have used.

Enter your project for a Bronze CREST Award

Hard work deserves a reward! Celebrate and certify your students' achievements by entering their projects for a Bronze CREST Award. Simply log in to your CREST account at: crestawards.org/sign-in.

Select the project and upload a sample of the students' workbooks or profiles, or other project evidence. Check the participating students have met each of the criteria on the teacher assessment page. Finally, complete the delivery and payment details to order your snazzy certificates. Congratulations on completing CREST Bronze!

What next?

The scientific discovery doesn't need to end here. Students can have a go at the next level up – a Silver CREST Award. Don't keep all the fun to yourselves, encourage others to take part in CREST projects and share the wonder of science. For free ideas on how to get started, see: crestawards.org.

Looking for some support?

Find a mentor by contacting your local STEM Ambassador Hub: www.stem.org.uk/stem-ambassadors/stem-ambassadors-partners

About our partners

Wellcome Centre for Human Genetics

In the first decades of the 21st century, researchers are beginning to understand in detail how our genetic inheritance makes us who we are.

At the Wellcome Centre for Human Genetics, the aim is to extend that understanding in order to gain a clearer insight into mechanisms of health and disease.

Looking across all 3 billion letters of the human genetic code, they aim to pinpoint variant spellings and discover how they increase or decrease an individual's risk of falling ill.
well.ox.ac.uk

Nuffield Department of Women's & Reproductive Health

The Nuffield Department of Women's & Reproductive Health at the University of Oxford is one of the largest academic departments in its field around the world. The department's core purpose is to advance women's and reproductive health through research and teaching, and to improve the quality and delivery of women's healthcare across the globe. They have been innovating, teaching, pioneering and evolving women's health for over 85 years.

Their research, partly funded by the Wellcome Trust, covers four thematic pillars:

- Cancer
- Global health
- Maternal and fetal health
- Reproductive medicine and genetics

and a cross-pillar theme: Data Science

Teacher information

The topic

The topic of disease, development and diagnostics was inspired by research from the Nuffield Department of Women's & Reproductive Health and the Wellcome Centre for Human Genetics.

Each of the six project briefs sets the scene for students to explore a range of diagnostic tools and interventions that help detect and improve health conditions. The students have the opportunity to develop their own pathway through their project to produce an outcome. Whether an education or public health campaign, scientific research and/or designing a toy for a toddler, they all have the common aim of improving health outcomes and quality of life for many people.

This pack contains project ideas to suit a range of interests. They each enable students to investigate common health issues and the role of science, technology, engineering and maths (STEM) to develop solutions that address health concerns.

Projects

1. Science research - it's teamwork: a research-based project exploring current research into endometriosis.

2. Let's talk periods: a communication project to increase all young people's understanding of menstruation and the impact periods have on lives.

3. HPV and cervical cancer: a communication project to increase awareness of the role of vaccinations and screening in public health.

4. It's a pain: a research project exploring methods of dealing with gynaecological pain (including period pain).

5. That's SMART: a communication project that enables students to explore and develop online antenatal health information.

6. Little learners: a design and make project to develop an activity or toy that can be used as part of a child's development check up at two years.

Project outcomes

Each project is labelled to provide information about the main project outcome and focus.

Supporting students to complete their project

Each project should involve approximately 10 hours of student work from start to finish. The project should be led by the students. As a teacher or mentor your role is to:

- Act as a sounding board for students' ideas and nurture the students' work.
- Check your students' project plans before they begin the next stage.
- Help students see mistakes and setbacks as an opportunity for positive learning and lateral thinking (leading to creativity).
- Where relevant, support students to access professionals or experts who could support them.
- Provide access to the internet, library books and magazines.
- Help students to complete their project and record their findings.
- Encourage students to reflect on their own performance and learning.

Use the top tips on page 20 to help students complete their Bronze CREST Award project report.

Teacher information

Health and safety

Students should be encouraged to make their own risk assessment before they carry out any activity, including surveys. They can use the CLEAPSS student safety sheets to help them. Find them here: science.cleapss.org.uk/Resources/Student-Safety-Sheets

Students should write out their project plan that identifies the risks involved in each stage of the project and the control measures and precautions they will take.

In all circumstances this must be checked by a competent person.

Students should be supervised when using specialised equipment. If a student wants to set up a less conventional experiment, then we suggest you seek specialist advice. Contact CLEAPSS directly for advice if you are unsure: cleapss.org.uk. Teachers in Scotland should refer to SSERC: sserc.org.uk.

The six project briefs cover a range of health issues. We would ask that you are mindful that some students might, for personal and/or health reasons, find some of the topics difficult to discuss and/or research.

For this reason, we recommend a 'sense-check' with each student to check that they are okay with the topic at the start and during the project delivery.

Tips for health and safety for students can be found on page 20. We recommend that each student is given this sheet to read before starting work on their project.

Bronze CREST Award

This collection of resources contains project ideas that can each be used to gain a Bronze CREST Award.

Each project has a teacher guide, which outlines the project from a teacher's perspective, and then a student brief, which can be given to students when they are ready to do the project.

Check out the CREST Resource Library for more support.

Why focus on disease, development and diagnostics?

Why focus on this topic?

Disease is something that is likely to affect all of us in our lifetime. Thankfully, new treatments are being developed all the time. However, in order to treat something effectively we firstly need to diagnose it correctly.

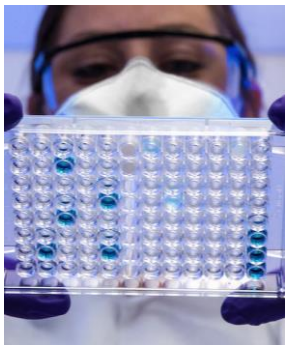
Some health conditions and diseases are hard to diagnose. This highlights the need for improved diagnostic methods. Some conditions, such cancers can be diagnosed with relative ease, but others rely on people being aware of the symptoms and their ability to access help and treatment.

Selecting a project idea

Each of the projects on offer here are based on real-life research from the Nuffield Department of Women's & Reproductive Health. The projects cover a range of diseases and health conditions and focus on the role of science to develop improved health outcomes for people.

Before you read through the project briefs, familiarise yourself with the terminology used within the pack.

Terminology



Throughout this pack we refer deliberately and specifically to 'people who have periods' and 'pregnant people'. We have done so to be as accurate as possible; not all women have periods or are able to have children, and those who do experience these things are not always women.

By being specific in our terminology, we hope to ensure these resources are as inclusive and scientifically accurate as possible. To learn more about the British Science Association's work around equality, diversity and inclusion please visit: britishscienceassociation.org/edi

Glossary

- People who have periods – people who have, or have had, a menstrual cycle
- People with a cervix – people who currently have, or had, a cervix
- Pregnant people – people who are currently pregnant
- People with uteruses – people who currently have, or had, a uterus

In some places we may quote expert sources who refer to a group as women – in those cases we would refer to the glossary. For example, when discussing pregnancy, if a source refers to 'women' we would typically take this to mean 'people who are pregnant'.

Teacher guide

Science research: it's teamwork

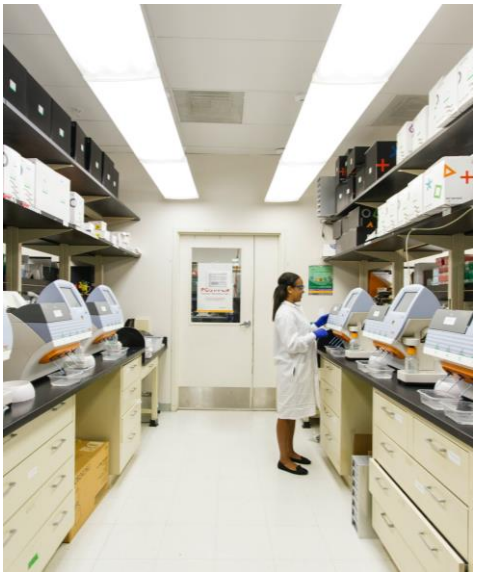
COMMUNICATION PROJECT

Context

In this project, students are given the opportunity to explore the role of medical research to develop greater understanding of diseases and illness.

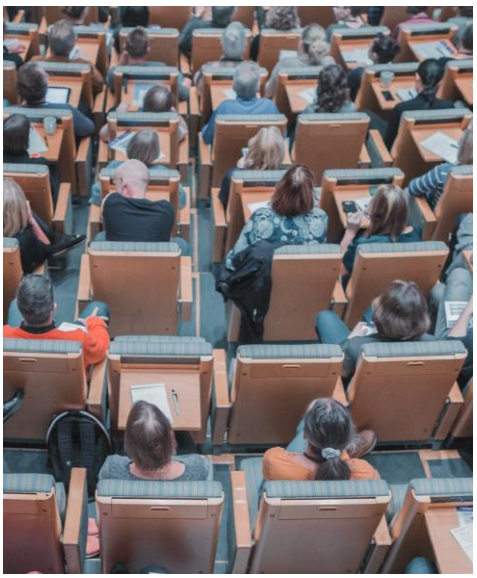
Students will learn that while some areas of medical research are achieving ground-breaking results, some diseases remain less understood. One such disease is endometriosis, a health condition affecting the lives of many people worldwide by causing severe pelvic pain and reduced fertility.

Endometriosis CaRe Oxford is a nationally and internationally acclaimed centre of expertise in research on endometriosis. The centre is respected for its multiple research projects and its commitment to sharing clinical research with networks in the UK. They strongly believe that *'collaborative research is essential for scientific advances.'*



For this brief, your students have been tasked with deciding which endometriosis researchers will be invited to present their work to endometriosis patients and professionals at an endometriosis conference.

They have been asked to draw together a report on different endometriosis research topics that they have discovered to help them and their team to prioritise who to invite.



Prompt questions

- Which areas of endometriosis research might other researchers and/or patients be most interested in learning about?
- Which places of medical research would be more reliable to trust the evidence than others?
- Do you think some endometriosis researchers might like to hear about clinical trials?
- What is the best format to present a report document?

Student brief

Science research: it's teamwork

COMMUNICATION PROJECT

Do you know of any breakthroughs in research that have led to the treatment of diseases?

If so, you might be thinking about the research that led to the development of the COVID-19 vaccine and/or in treatment for certain cancers and chronic illness.

Although health research is leading to improved health for millions of people, some diseases and health conditions are less understood.

At the Nuffield Department of Women's & Reproductive Health at the University of Oxford, a team of scientists are conducting research into endometriosis, focusing on why it develops and how it can be treated.

This disease can cause painful periods, lower back and pelvic pain, and infertility. The research team consists of scientists, nurses and doctors all working together to understand more about endometriosis.

Project brief

Imagine you have been asked to organise an endometriosis conference for researchers from different organisations to share their work.

Your task is to produce a report to help you to decide which researchers to invite to give presentations on their research. You need at least four different presenters.

Getting started

- Find out more about endometriosis, so that you understand more about the disease.
- Find out about as many ongoing research projects on endometriosis as you can. Don't forget to keep a record of the research areas and, if possible, the contact of who is conducting the research so that you have their information if you decide to invite them to your meeting.
- Find out which of the research projects involve clinical trials and how they are run.

What to think about

- Which websites are likely to give you the best information on endometriosis research?
- What information do you need on the research projects to help me to decide which are the best ones to share amongst researchers?
- How can you tell if the research is reliable, up-to-date and continuing?
- Is it worth inviting a researcher from an international project? What might you learn from research from different countries?

Useful links

Research studies

wrh.ox.ac.uk/research/endometriosis-care-research-projects

wrh.ox.ac.uk/research/endometriosis-care

Endometriosis information and treatment
nhs.uk/conditions/endometriosis

Endometriosis video
wrh.ox.ac.uk/research/endometriosis-care

Endometriosis UK
endometriosis-uk.org/research

University of Edinburgh
ed.ac.uk/inflammation-research/clinical-trials/endometriosis-trials

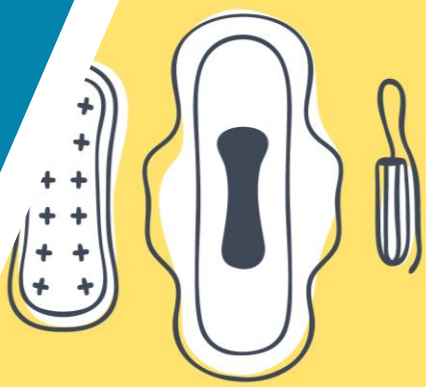
Health and safety

Read the health and safety advice on the tips sheet before starting your project.

Teacher guide

Let's talk periods

COMMUNICATION PROJECT



Context

This project draws on multiple studies into what it's like for people who have periods.

There are many topics to focus on around periods: period pain (it is estimated that nearly 2 million students in the UK have missed school because of period pain), period poverty and many more issues.

One thing is clear, the taboo and stigma around talking about periods can prevent people of all ages from seeking medical help and/or support from family or friends to help to deal with them.

In 2021, almost 100,000 people over the age of 16 shared their concerns about health issues. The final report, *Women's Health – Let's talk about it*, highlighted several recommendations to improve girls' and women's health. One recommendation is that schools should teach all students about 'female health conditions' as part of the Relationships, sex and health education (RSHE) curriculum.

In this project, students are tasked with developing teaching and learning materials for the RSHE education curriculum (or equivalent curriculum) on the topic of periods.

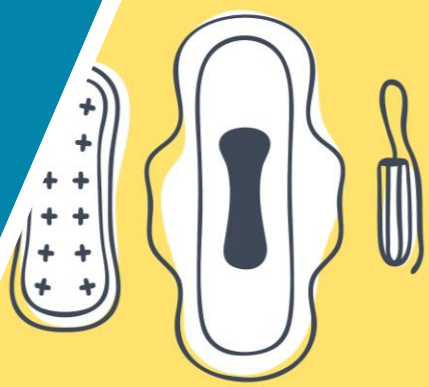
Prompt questions

- Why do you think talking about periods might be seen as a difficult/taboo subject?
- Why might students take time off school when on their periods?
- Who might be able to provide support and/or give advice to students in and out of school about period concerns or questions?
- What ideas do you have for making learning about periods informative for all young people?

Student brief

Let's talk periods

COMMUNICATION PROJECT



Did you know that lots of students miss school every month due to their period?

Research from the charity Plan International suggests that period pains, the anxiety of managing periods and period poverty are all contributing factors in students having time off school.

One thing is for sure, the taboo and stigma of talking about periods to family, friends and health professionals is not helping those who need to get the necessary support to deal with periods.

In 2021, almost 100,000 people over the age of 16 shared their concerns about health issues. The final report, *Women's Health – Let's talk about it*, highlighted several recommendations to improve girls' and women's health.

One recommendation is that schools should teach all students about 'female health conditions' as part of the Relationships, sex, and health education (RSHE) curriculum.

Project brief

Imagine you are responsible for advising on the content of the RSHE curriculum for 11-14-year-olds in the UK.

You are tasked with developing a set of lesson activities for teachers to use to cover the topic of 'Periods', for people who have periods and for people who don't.

Getting started

- Ask your friends and other students at your school what they would like to know about periods.
- Ask a teacher at your school who covers the topic of periods to share the materials they use.
- Explore teaching materials used to cover the topic of periods. Are there any good materials (videos, images, activities) that you can include in your lessons?

What to think about

- How many lessons do you think it would take to cover the topic of periods in sufficient detail?
- How can you make the lesson activities on periods engaging for both those who have periods, and those who don't?
- What is the best way to record lesson plans for a teacher to use? Is there a standard format used in your school?
- Do you need to seek permission to use any information, images, video clips, etc. that is published online?

Useful links

Women's Health – Let's talk about it
gov.uk/government/publications/our-vision-for-the-womens-health-strategy-for-england

Period taboo: Why can't we talk about menstruation?
tinyurl.com/53c6mym9

Nearly 2 million girls in the UK miss school because of their period
tinyurl.com/5268xw2b

Period pain
tinyurl.com/33uuwehn

Pain in women
wrh.ox.ac.uk/research/pain-in-women

Menstruation quotes and illustrations
tinyurl.com/3atx7wfu

Break the barriers: Girls' experience of menstruation in the UK
plan-uk.org/file/plan-uk-break-the-barriers-report-032018pdf/download?token=Fs-HYP3v

Period poverty sanitary products improve school attendance
bbc.co.uk/news/av/uk-england-hampshire-46361899

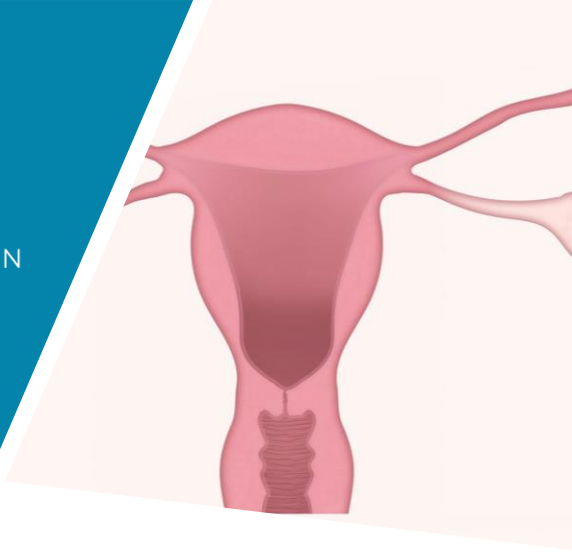
Health and safety

Read the health and safety advice on the tips sheet before starting your project.

Teacher guide

It's a pain

COMMUNICATION PROJECT



Context

This project is based on research conducted by the Nuffield Department of Women's & Reproductive Health into chronic pain experienced by people who have periods (dysmenorrhoea).

Unfortunately, treating chronic pain is difficult and attempts at finding new drugs have not been that successful.

In this project, students are offered the opportunity to research over-the-counter medication and other self-help pain therapies aimed at people experiencing gynaecological pain.

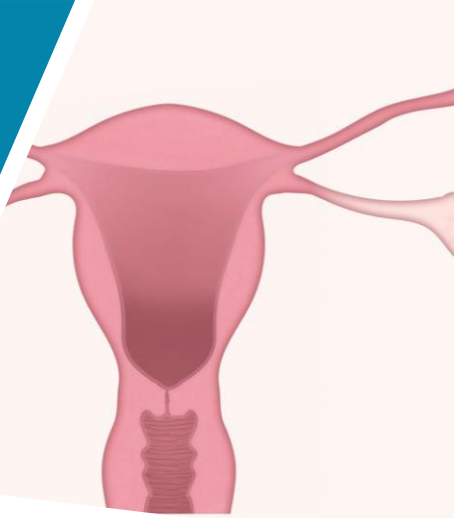
Prompt questions

- What are the most common gynaecological conditions that cause people to experience pain?
- What do you do to relieve pain (painkillers and other self-help techniques, such as hot water bottles, rest, icepack, etc)?
- Have any of you had period pains? If so, how have you treated the pain?
- How do you think painkillers or pain therapies work in the body?

Student brief

It's a pain

COMMUNICATION PROJECT



Have you ever been in pain? If so, did you get it treated?

The focus of this project is research into the treatment of pain. Particularly chronic gynaecological pain that is experienced by those who have period pain and/or medical conditions such as endometriosis.

Period pain is very common – most people experience pain with their period, but it's not fully understood why some people experience worse period pain than others.

There are several suggested treatments for period pain including self-help techniques such as using a hot water bottle, gentle exercise, etc. The NHS advice is to take painkillers to manage the pain. However, for some people, self-help techniques and painkillers still do not bring them enough pain relief.

The Nuffield Department of Women's & Reproductive Health and the Wellcome Centre for Human Genetics are conducting research into period pain, for example how the brain and our hormones can affect pain with the hope of developing more the most effective treatment.

Project brief

Imagine you are working for the NHS. You have been asked to develop some information to help young people find out about the range of self-help treatments and painkillers to treat period pain.

Getting started

- Conduct online research into period pain to find out how people are affected.
- Find out which medications and/or self-help therapies are recommended on medical website to treat gynaecological pain such as period pain.
- You might want to ask your friends if they experience period pains and if so, how they treat their pain.
- Explore existing information on period pain aimed at young people. What do you like about it? What could be improved?

What to think about?

- How can you avoid using misinformation about treatments for period pain?
- Consider where young people are most like to go for health information (online, as a poster, leaflet, podcast, etc).
- What age group are you targeting? How do you make it appealing to the age range?
- How can you ensure that the information is accessible to all people with period pain? Consider the levels of language, use of images and clear design.
- How can you evaluate my information with the target group that it is aimed at?

Useful links

Pain in women
wrh.ox.ac.uk/research/pain-in-women

Period pain
nhs.uk/conditions/period-pain

NHS Inform
tinyurl.com/3sxmdv6c

How to treat period pain
tinyurl.com/msy2jfwm

Health and safety

Read the health and safety advice on the tips sheet before starting your project.

Teacher guide

HPV and cervical cancer

RESEARCH PROJECT

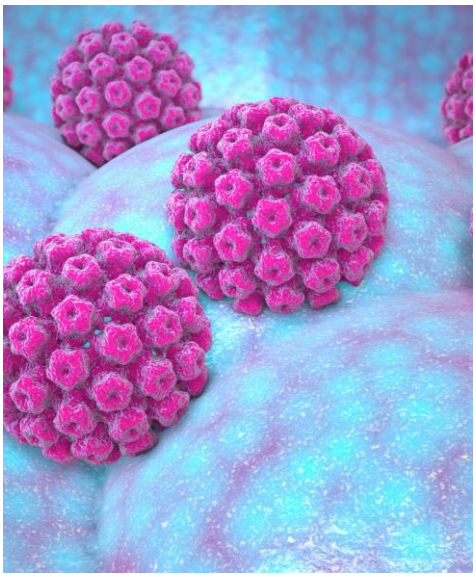
Context

In England, all young people aged 12-13 are now offered the human papillomavirus (HPV) vaccine. The vaccine was developed to protect young people from becoming infected with HPV, a virus which increases the risk of developing cancers. They include cervical, mouth and throat cancers.

There is a national healthcare concern that the numbers of people attending NHS cervical cancer screenings is falling year-on-year. Only 1 in 3 individuals take up their invite to a smear test; this is where a nurse checks the health of a person's cervix by taking a sample of cells using a small, soft brush.

The Nuffield Department of Women's & Reproductive Health state that over 530,000 people worldwide are diagnosed with cervical cancer each year and it is the most common cancer in women under 35 in the UK.

The focus of this project for students is a public health campaign, to promote knowledge around and encourage the uptake of the HPV vaccine and/or cervical screening.



Prompt questions

- Why is the HPV vaccination now offered to everyone, and not just those who have cervixes?
- What are the reasons/barriers that prevent people from having the HPV vaccination?
- Why might some people decide not to take up the chance of cervical screening when offered?
- What would motivate someone to attend their screening?

Student brief

HPV and cervical cancer

RESEARCH PROJECT

Has anyone you know had the HPV vaccination?

If so, can you remember what HPV stands for? It stands for human papillomavirus.

The vaccination protects people from becoming infected by some of the most harmful strains of HPV, as this can lead to the development of some cancers, including cervical cancer.

According to the Nuffield Department of Women's & Reproductive Health, cervical cancer is the most common cancer in women under 35. That is why the NHS offers all people with a cervix between the ages of 25-64 cervical screening tests. You can find out more about how screening works in your project.

A big concern for the NHS is that the number of people attending cervical screening tests is falling. This screening is essential to detect HPV, pre-cancerous and cancerous cells.

The NHS report *Barriers to Attending Screening* found that some people did not fully understand the link between HPV and cervical cancer.

Project brief

Imagine you work for the NHS. You are concerned about young people who have not been vaccinated against HPV and those who do not attend cervical screening.

Develop a public health campaign that either encourages:

- Young people aged 12-25 to accept the HPV vaccination and/or
- More people with cervixes between 25-64 years to attend cervical screening tests

Getting started

Before you get started on your project, find more about the HPV vaccination and cervical cancer. Also explore how cervical screening is carried out and why screening is only offered to people with a cervix over the age of 25.

You might also want to look at any existing information and public health messages that cover the HPV vaccination and cervical cancer.

Do not forget to keep a record of your sources of information. You will need to reference them later.

What to think about

- What is the best type of media to convey messages to your target age group (digital, print and/or broadcast)?
- Where can you find reliable sources of information to include on HPV and cervical cancer in the campaign?
- What might be the reasons for people choosing not to be vaccinated against HPV and/or to attend cervical screening tests?
- What can I do in my campaign to help people take action to get vaccinated and/or screened?
- How can you evaluate your campaign works?
- What can you do to make sure the campaign is accessible to people who do not speak English, have disabilities (such as deafness) and/or a learning disability?

Useful resources

Cervical cancer
wrh.ox.ac.uk/research/cervical-neoplasia

What is HPV? British Sign Language video - HPV vaccination leaflet explained
jostrust.org.uk/information/hpv/what-is-hpv

NHS cervical screenings
nhs.uk/conditions/cervical-screening

Making cervical cancer screening more accessible
tinyurl.com/yjuphcwm

Barriers to attending screening
tinyurl.com/y83knprw

Health and safety

Read the health and safety advice on the tips sheet before starting your project.

Teacher guide

That's SMART

COMMUNICATION PROJECT

Context

This project brief is based on the SMARThealth Pregnancy programme (George Institute for Global Health). It was developed to help community health workers in remote parts of India identify people at risk of health complications during pregnancy.

All people have a right to affordable, quality healthcare. Yet in many low-income communities around the world, healthcare is only accessible to pregnant or postpartum people.

Antenatal care provides an opportunity for health workers to meet pregnant people, but often low-skilled health workers provide this care. To address this skill and knowledge gap, a SMARThealth phone-based system was developed by the George Institute for Global Health in India. It is transforming healthcare for pregnant people by providing online information that helps health workers to diagnose and provide clinical support for them. The diagnosis and follow-up care of conditions such as anaemia, diabetes and high blood pressure is leading to improved longer term health for pregnant people.

As more people globally have access to mobile phones, SMARThealth could be scaled up within India and many other countries to help diagnose and provide follow up guidance on many health issues.

In this project, students will develop online health information for people living in parts of the world with little or no access to trained medical staff. The health information will enable pregnant people to access information about health conditions, giving them the option of seeking medical advice when needed.

Prompt questions

- What do your students do in the UK if they want to seek health advice or get a diagnosis?
- Do they know anyone who is or has been pregnant recently? How are people monitored throughout their pregnancies? Do they know the name of that care?
- Do they know of any health conditions that can arise during pregnancy? If left untreated, what could be the consequences for the parent and baby?

Student brief

That's SMART

COMMUNICATION PROJECT

Have you ever been to see a doctor or nurse when you have felt unwell?

In the UK, we are lucky to be able to get medical advice when needed. A good example of this is during pregnancy, when a midwife or doctor monitors the health of the pregnant person and baby. If the pregnant parent develops a health condition such as anaemia, diabetes or depression, it is often diagnosed and treated.

However, in some parts of the world, pregnant people are not so fortunate. Sometimes those who live in rural areas have little access to trained medical staff. So, their chances of a diagnosis and treatment of serious health conditions are low. This can have a longer-term impact of their health.

But an exciting project called SMARThealth in India is making a difference. SMARThealth is an online information service that is helping health workers in rural regions diagnose health conditions during pregnancy, such as anaemia, diabetes and high blood pressure.

Project brief

Imagine you are a doctor or midwife in a part of the world where many pregnant people lack access to medical support from trained midwives.

Your task is to develop health information for unqualified health workers to help diagnose common health conditions during pregnancy such as diabetes and high blood pressure.

Health workers have access to mobile devices and some basic medical equipment. If they diagnose a serious condition the pregnant person would need to see a qualified doctor or midwife at a hospital or health clinic.

Getting started

- Conduct some online research into common health conditions during pregnancy and then choose a single or multiple health conditions that you want to focus on.
- Explore where you can find reliable sources of information.
- What is the best way to create information that can be accessed through a mobile phone?
- Think how you can present information to pregnant people/ or health workers in an informative but interesting way.

What to think about

- How can I avoid including misinformation on my app/site?
- Could I speak to a midwife or doctor who diagnoses and treats people during pregnancy? If so, what could I find out from them?
- Where can I source images and videos from to make the page more interesting?
- How can I evaluate the effectiveness of the information I have developed?

Useful links

Pregnancy
nhs.uk/pregnancy

Common health conditions during pregnancy
nhs.uk/pregnancy/related-conditions/common-symptoms/common-health-problems

Common discomforts during pregnancy
pregnancybirthbaby.org.au/common-pregnancy-problems

SMARThealth in India
wrh.ox.ac.uk/research/smarthealth-pregnancy-improving-women2019s-life-long-health-in-rural-india

Health and safety

Read the health and safety advice on the tips sheet before starting your project.

Teacher guide

Little learners

COMMUNICATION PROJECT

Context

This activity is based on the EveryPrem Project, a research project by the University of Oxford that evaluated an international tool (set of activities) that was used to measure the development of two-year-old children who were born pre-term. For more information: wrh.ox.ac.uk/research/everyprem

In the UK, there is a statutory requirement that all two-year-olds undergo a progress check-up. The framework for the check-up includes areas of development – communication and language, physical development, and personal, social and emotional development.

In this project students learn about the areas of development before designing and making an activity that can support at least one area of a two-year-old's development.

Prompt questions

- What sorts of things can two-year-olds do? What do you think are the areas of children's development?
- What do you think can cause delay in children's development?
- Why do you think that the UK Government requires that all two-year-olds be given a development check-up?
- What specialist jobs are there to help a child's development (in language, physical and social and emotional development and cognition)?
- What can you do to help a baby and toddler's development in areas such as language, physical, cognition, etc?

Student brief

Little learners

COMMUNICATION PROJECT

Can a toddler jump and/or kick a ball? How many words can they speak?

These are the sorts of questions that child development specialists are interested in exploring.

At the Nuffield Department of Women's & Reproductive Health, a project was set up to investigate whether a set of activities (games, etc) can provide a reliable method of testing the development of two-year-olds.

These activities evaluated areas of children's development including; communication and language, personal social and emotional skills, physical development and cognition (how children think, explore and figure out things).

In the UK, all children around the age of two are offered a check-up on their development.

If a child does not reach some of the development targets, then support can be put in place to help the child. This support can be offered from specialists such as speech and language therapists, physiotherapists and teachers.

Project brief

A health visitor is a nurse who specialises in working with families with children aged 0 to five.

Imagine you are a health visitor who runs the check-ups for two-year-olds in the area where you live.

Design and make an activity or toy to help you assess the development of a two-year-old. You can choose any area of development; speech and language skills; personal, social, and emotional development; physical development; cognition.

Getting started

To help you to plan your project, conduct some research into the areas of a two-year old's development. Try to find information on the development milestones for an average two-year-old.

This should help you to decide on which area of development you want to focus. Are you most interested in helping to develop a child's language, physical or their personal, social, and emotional development or cognition?
Do not forget to keep a record of your sources of information. You will need to show them in your project write up.

What to think about?

Before you plan to develop your toy or activity you might want to consider:

- What activities and toys already exist that are suitable for toddlers? Which toys help develop language, personal and physical development (and cognition)?
- How can you make sure the activity or toy you plan will be safe to use with a toddler?
- What skills do you have to help you to develop the task? What tools and equipment might you need? Can you make the activity or toy in the time available?

Useful links

Your toddler's developmental milestones at two-years-old
unicef.org/parenting/child-development/your-toddlers-developmental-milestones-2-years

Two-year-old Check: Development Matters Statements
earlylearninghq.org.uk/latest-resources/2-year-old-check-development-matters-statements-2

Your baby's health and development reviews
nhs.uk/conditions/baby/babys-development/height-weight-and-reviews/baby-reviews

Health and safety

Read the health and safety sheet before starting your project.

TOP TIPS

for completing a Bronze CREST Award project

1. Understand the problem

Do your research! Make sure you plan your time effectively and find out as much as you can about project topic before you start. And make sure you are clear about the problem you need to solve. If you are developing your own project idea, discuss your ideas with your teacher or mentor before you start your project.

2. Plan your approach

Draw or write a plan showing how you will approach the problem, the tasks you will complete, the resources you will need and how long you will spend on each task. Ask your teacher or mentor for feedback on your plan.

3. Health and safety!

Identify any risks to health and safety or ethical concerns you think there will be. Decide how you will limit or overcome these risks. Show your risk assessment to your teacher.

4. Research

Consider finding a professional mentor here: www.stem.org.uk/stem-ambassadors/stem-ambassadors-partners

Find out more by doing some research using the suggested links on the project page. Also research relevant news articles, blog posts and other media sources.

5. Use your research to improve your plan and generate ideas

Use your research to help you come up with a possible solution or to select the best experiments to use in your practical work.

6. Finalise your idea and carry out practical work

Carry out any practical work including experiments, surveys, designing and making activities. When testing your ideas, make sure you make it a fair test and record all your results clearly. You could also use photos and a diary to record your project activities.

7. Concluding your project

- What have you found out by doing your project?
- Did you come across any problems? How did you overcome them?
- What is the impact of your project for other people? How could it be developed further?

8. Choose the best way to communicate it

Tell others about what you did. You could use a written report, a digital presentation, a blog or a poster display. Make sure you include each stage from planning through to the conclusion.

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