Careers Hive

Skills and Strengths Workshop

EDINBURGH SCIENCE

CAREERS HIVE SKILLS AND STRENGTHS WORKSHOP

INTRODUCTION AND INSTRUCTIONS

This pre-recorded workshop will get students thinking about the individual strengths and skills they are developing during their time at school and about how these relate to real-life situations in STEM industries.

This booklet provides all of the materials required to explore a fun and innovative workplace, in which people with different strengths and skills work collaboratively and creatively to share ideas and address challenges. It is perfect for helping students to visualise their future selves and connect what they learn at school to the wide range of opportunities that exist in STEM.

This guide provides you with the teacher notes you need to run the *Skills and Strengths* workshop and the pages you will need to copy to provide the required materials to your students. These materials are used alongside the *Skills and Strengths Workshop* video.

All videos, documents, print outs and support resources referenced in this document can be found on our website.

Go to **edinburghscience.co.uk/schools/secondary.**

FOR THE WORKSHOP YOU WILL NEED:

- A set of skills and strengths words per student or group.
- A set of job cards per student or group.
- A set of subject cards per student or group.
- A set of challenge cards per class.

These can all be copied/printed from this booklet and the students should cut out the words and cards before the session starts.

AT A GLANCE

The *Careers Hive Skills and Strengths* workshop gives students a chance to explore where their own and their classmates' skills and strengths lie, to help them better understand what their career path and future career could involve.

TEACHER NOTES

TARGET AGE GROUP: S1–3
MINIMUM TIME REQUIRED: 45–60 MINUTES

SESSION FOCUS

This interactive, video-led workshop is designed as a catalyst for thinking about the future of our planet and our place within it as workers, leaders, problem solvers and creators. Students will explore and experiment with careers concepts in order to identify their individual skills and strengths and consider what they might want their future working lives to look like.

- **Introduction** – Students explore what they enjoy doing to start them thinking about how that can connect to a future role.
- **Skills and strengths** – Students look at what a skill and what a strength is, explore the difference and where they have cross over. They then try to recognise the skills and strengths they see in themselves and others.
- **STEM jobs** – Students match a set of pre-defined jobs to the skills and strengths they feel are relevant to the roles so that they can see what might line up with their own areas of interest.
- **Transferrable skills** – Students explore what a transferable skill is to understand more about how studying certain subjects can prepare you for a wide range of careers.
- **School subjects** – Students explore how taking a range of subjects can be useful for a future career and how a balance has value.
- **Partner skills** – Students share the skills and strengths they picked for each other at the start to give an outsider's perspective.
- **Team challenge** – Students work as a group to look at a scenario and assign roles to each member of the group based on what they feel that person is particularly good at. This again provides an external perspective on their futures. They are also asked to consider which role they would have selected for themselves, to encourage self-reflection.
- **Conclusion** - Students reflect on what they have learnt and think more about a career they are interested in.

KEY LEARNING OUTCOMES

Students will be able to represent their current understanding as they:

- Identify the skills required for different types of work.
- Recognise that organisations are made up of people with different skills and qualifications.
- Express that jobs are for everyone.
- Consider how choosing STEM subjects at school can lead to a wide range of job options in the future.
- Consider the link between subjects they choose and routes to further training when they leave school.

CURRICULUM LINKS

This workshop complements the following experiences and outcomes:

- **HWB 3-19a**: I am developing the skills and attributes which I will need for learning, life and work. I am gaining understanding of the relevance of my current learning to future opportunities. This is helping me to make informed choices about my life and learning.
- **HWB 2-20a / HWB 3-20a / HWB 4-20a**: I am investigating different careers/occupations, ways of working and learning and training paths. I am gaining experience that helps me recognise the relevance of my learning, skills and interests to my future life.

TEACHER BACKGROUND INFORMATION

The workshop objectives are to:

1. Address the downturn in enthusiasm of students towards STEM subjects from S3 onwards.
2. Support students in making well-informed decisions about their futures.
3. Showcase the breadth of careers options within STEM.

To address the shortfall in STEM-qualified individuals in Scotland we must increase the number of those choosing and continuing study in STEM subjects at school. There are a number of barriers in the delivery of careers information in schools and some key factors influence pupils in their choice to study STEM subjects. We aim to address these barriers and influencing factors by engaging S1/S2 pupils in careers-related activity in a hands-on workshop environment that links closely to real-world examples.

EQUIPMENT

FOR THE CLASS:

- Video screen at front of class*
- System to stream video*
- Speakers*

FOR EACH GROUP/STUDENT AS REQUIRED:

- 1 x set of skills and strengths cards
- 1 x set of job cards
- 1 x set of subject cards
- 1 x set of career scenario/challenge cards
- Pen*
- Paper*

Please note that all items marked * are not supplied within the *Careers Hive* workshop kit. All other items can be copied from this booklet.

PREPARATION

Before the workshop and in preparation for this session:

- Where possible complete the *Engaging in STEM Careers* CLPL workshop on the *Careers Hive* website.
- Read these teacher notes.
- Gather or print the materials required – as above.
- Check you can play the *Skills and Strengths* Workshop video and watch it if needed to remind yourself how the session works.
- Set up the video to run when you are ready to start the workshop.

SESSION DETAIL

SECTION	TEACHER GUIDANCE
HOW TO	1. Split the group into pairs/groups as you see fit. This works best if students are in small, even groups but will work with any group size or as pairs. 2. Hand out the materials to the class. 3. Play the *Careers Hive Skills and Strengths* video and pause at the relevant points to complete the activities.
INTRODUCTION	Interests • Encourage students to note down a few of their areas of interest or things they really enjoy doing. They don't have to be education related. • Allow 1 minute for activity.
SKILLS AND STRENGTHS	• Encourage students to write down as many skills and strengths (S&S) as they can think of. • Allow 2 minutes for activity.
YOUR OWN AND OTHERS SKILLS AND STRENGTHS	• Encourage students to pair up with someone else in their group. • On paper mark down what they feel their own S&S are and what they think the S&S of their partner are. Students can then share what they thought their own S&S were. • They are to keep hidden what they wrote for the other person. • Students can use the S&S words provided to inspire their choices. • Allow 4 minutes for activity.
SKILLS AND STRENGTHS SORTING	• Students are to try to sort the S&S words into 3 columns, one for things they see as a skill, one for strengths and one for words they think fall into both categories. • Allow 5 minutes for activity. • Encourage a whole class discussion about where they placed certain words and why.
STEM JOBS AND TRANSFERRABLE SKILLS	• Students look at a certain S&S and try to place/match them with as many of the jobs on the job cards as they can. • Allow 4 minutes for activity.
SCHOOL SUBJECTS	• Use the subject cards to encourage students to consider which subjects would be useful for each job. • Allow 5 minutes for activity.
PARTNER SKILLS AND STRENGTHS	• Go back to the *Your Own and Others' Skills and Strengths* activity and ask students to share what they noted down for their partner. • Allow 2 minutes for activity.
TEAM CHALLENGE	• Each group should get a challenge card, it does not matter if more than one group have the same challenge. • Ask students to read through a challenge card and assign roles to each member of their group based on the S&S the group thinks they have. • They cannot assign themselves a role as part of the team but should think about which they would choose for themselves. • Encourage questions, e.g.: - Tell me what you think about the job you've been given. - Do you agree that you have the skills the team say you have? - What would you most look forward to doing in that job? - Was it easy or difficult to choose, and why? • Allow 10 minutes for activity.
CONCLUSION	• Have a whole class discussion about what they learnt during the session and if they were surprised by the S&S others saw in them. • Post-session activity - Ask students to look at the subjects and skills and strengths cards again and match them to a career they are interested in.

LESSON SUPPORT

FOLLOW-UP IDEAS

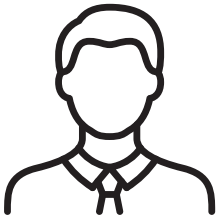
- Ask students to conduct an interview with someone in their life about their career path, exploring if it followed a direct line or if they changed their mind along the way. Question what they feel were the most important skills and strengths which got them to where they are in their career.
- Share your own career path as a teacher or ask a colleague to talk about their path with the class if they had an unusual path to teaching.
- Subject activity – Students should note down a career they are interested in and then carry out a research project into the relevant subjects they can take at school. Ask them to note down as many subjects as they can which might have some relevance, not just the obvious choices.

USEFUL LINKS

- Skills Development Scotland, My World of Work: **myworldofwork.co.uk/**
  - This area is specifically for secondary teachers: **myworldofwork.co.uk/secondary-teachers**

JOBS CARDS

An equalities officer
in a new engineering firm
(equalities, human rights, people)



An entrepreneur bringing
a new product to the market
(tech, development)

A freelance journalist
covering breaking science news
(writing, creative output,
general interest, media)

A designer creating assets
for a new video game
(computers, designing)

A scientist researching
new drugs to fight disease
(chemistry, biology, lab work, health)

A nurse in an intensive care ward
(health, people, high-pressure)

An outdoor education officer
running workshops for young people
(education, outreach,
biology, physical work)

A project manager
campaigning for food rights
(food, health, society)

Honest

S&S

Caring

S&S

Optimistic

S&S

Decisive

S&S

Resilient

S&S

Program computers

S&S

Self-motivate

S&S

Detail oriented

S&S

Funny

S&S

Creative

S&S

Realistic

S&S

Personable

S&S

Logical

S&S

Work under pressure

S&S

Persuasive

S&S

Use computers

S&S

Build things

S&S

Look at the big picture

S&S

Communicate

S&S

Determined

S&S

English

Subject

Art and design

Subject

Maths

Subject

Design and manufacture

Subject

Modern languages

Subject

Music

Subject

Biology

Subject

Religious, moral and philosophical studies

Subject

Chemistry

Subject

Physical education

Subject

Physics

Subject

Business management

Subject

Geography

Subject

Graphic communication

Subject

History

Subject

Drama

Subject

Modern studies

Subject

Administration and IT

Subject

Computing science

Subject

Home economics

Subject

CHALLENGE 2

HEAL + FEED

RESEARCH WHAT CROPS CAN BE GROWN NEXT TO EACH OTHER IN FARMS TO HELP THEM GROW WITHOUT HARMFUL CHEMICALS AND IN A WARMER CLIMATE

JOBS IN THE TEAM:

- Write down a plan of times and locations to plant and test the vegetables.
- Collect samples of each plant and the soil around them for testing.
- Organise a conference so that scientists can share the results of the tests.
- Plant all the crops in each test field, making sure everything is marked clearly, and check them once a week.
- Design a leaflet explaining why the research is important, working with scientists to make sure it's correct.
- Install weather and soil sensors in the test fields, and create graphs from the data.
- Write a computer program to automatically control water sprinklers in the test field.
- Plan what work other members of the team have to do, and talk to them all once a week to help make sure it all happens at the right time.

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CHALLENGE 1

HEAL + FEED

DEVELOP A NEW COMPUTER SYSTEM FOR A HOSPITAL TO MAKE SURE PATIENTS WHO ARE THE MOST SICK GET SEEN FIRST

JOBS IN THE TEAM:

- Find out how the current system works by looking at hospital records.
- Talk to current patients about what they think about the current system.
- Run a 60 minute session with hospital staff to get their ideas about how a new system could work.
- Create a test computer program to show staff how it would work.
- Work with doctors and nurses to create a list of which illnesses should be seen first and which should be seen last, and why.
- Design examples of signs to tell patients about the new system.
- Plan how long it will take to complete the project, and talk to the team once a week to help make sure it all happens in time.

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CHALLENGE 4

DESIGN + PLAY

CREATE BLUETOOTH HEADPHONES THAT MONITOR THE USER'S STRESS LEVELS AND HAS AN APP TO SHOW WAYS TO CONTROL STRESS

JOBS IN THE TEAM:

- Design a headband that sits comfortably but has sensors that touch the person's skin.
- Write a computer program that shows the user's stress levels on the screen.
- Design how the app looks so that it is easy and fun to use.
- Create a wiring diagram for the electronics inside the headphones, using design software.
- Plan what work other members of the team have to do, and talk to them all once a week to help make sure it all happens at the right time.
- Decide what price the headphones should be, using information about other headphones and the places you will sell them.
- Record an advert for the headphones using actors and a director.
- Find the best price for all the components of the headphones and order them all to arrive in time for manufacturing.

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CHALLENGE 3

DESIGN + PLAY

REDESIGN THE HAND CONTROLLERS FOR A V.R. HEADSET SO THAT THEY ARE MORE COMFORTABLE AND CAN BE USED BY PEOPLE WITH ARTHRITIS

JOBS IN THE TEAM:

- Talk with physiotherapists to create a list of ideas for the shape of the controller.
- Sketch ideas for the controller using pens, paint and a tablet.
- Build a 3D digital model of the ideas given to you by the 2D design team.
- Test the controllers by working with a group of people with arthritis.
- Write the code to control when the controller movements affect the app.
- Use cameras and computers in a studio to capture the movements of people's hands.
- Sculpt prototype controllers out of polymer clay to be used in testing.
- Create a list of costs for each part of the controller to find out how much it would cost to make.

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CHALLENGE 5

BUILD + CONNECT

BUILD A SCHOOL AND COMMUNITY CENTRE ON THE SAME SITE, WITH DIFFERENT TEAMS OF PLANNERS AND CONSTRUCTION WORKERS

JOBS IN THE TEAM:

- Help construct one of the buildings using your skills in welding and bricklaying.
- Sketch a 2D plan of where the footpaths will be on the site, making sure they are suitable for all users.
- Talk with members of the community to decide what the new building should be used for.
- Work with local school groups to make outdoor art for the new site.
- Plan a timing schedule for when each team will have access to the site to drop off equipment and building materials.
- Write a report to help convince the council to give and extra £100,000 to the project.
- Design the layout of the school so that each department is soundproofed and has its own colour scheme.

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CHALLENGE 6

BUILD + CONNECT

TEST A NEW CYCLE BRIDGE PROTOTYPE TO DECIDE IF IT'S SAFE FOR HEAVY E-BIKES AND CARGO BIKES

JOBS IN THE TEAM:

- Attach sensors to the bridge that monitor its movement.
- Write a report to the Government about how cycle bridges should be made in the future.
- Find people who can test the bridge by cycling over it on heavy bikes and pay them to be there on a testing day.
- Create graphs and infographics from the results from sensors on the bridge.
- Calculate how much it would cost to change every cycle bridge in Scotland to become stronger.
- Create a digital 3D model of the bridge to help with testing.
- Decide what material to use if the bridge needs reinforcements.
- Build the prototype bridge by welding steel girders, using design plans.

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CHALLENGE 8

ENERGY+ ENVIRONMENT

INSTALL 5 NEW TIDAL ELECTRICITY TURBINES, AND MAKE SURE THAT THEY DON'T SPOIL THE LANDSCAPE OR HARM WILDLIFE

JOBS IN THE TEAM:

- Create a map of the area, including any wildlife, by visiting with a boat and cameras.
- Plan how all the parts for the turbines and buildings will get to the site at the right time.
- Create a report giving details about which plants or animals may be disturbed during installation.
- Keep track of all the costs involved in the project and update the team every week.
- Organise all the details to get a shipping company to load the turbines onto a boat and then lower them into place underwater.
- Create a 3D map of the sea bed with the turbines in place.
- Make a list of all the animals that may visit the area at different times during the year and highlight any that are endangered.
- Create an information leaflet to give out to the local community explaining the project.

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CHALLENGE 7

ENERGY+ ENVIRONMENT

CONVERT AN OLD STONE QUARRY INTO AN OUTDOOR WATERSPORTS CENTRE WITH A SOLAR POWERED VISITOR CENTRE

JOBS IN THE TEAM:

- Find out how much electricity could be generated from solar panels on the roof and next to the paths.
- Design the wakeboarding and canoe courses to make them accessible to anyone.
- Create a plan for the staff needed, including working times and type of jobs.
- Talk to local residents about what they want from the visitor centre, like a cafe or free bike hire.
- Keep track of how much each part of the project is spending, and update everyone once a week.
- Design the outside of the visitor centre and the paths so that it fits in with the landscape.
- Design the inside of the centre so that it looks interesting and has space for any group to meet.
- Create a video advert for the centre to go on social media and TV.

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