SIEMENS

Siemens Insight Programme

Student Portfolio

SIEMENS

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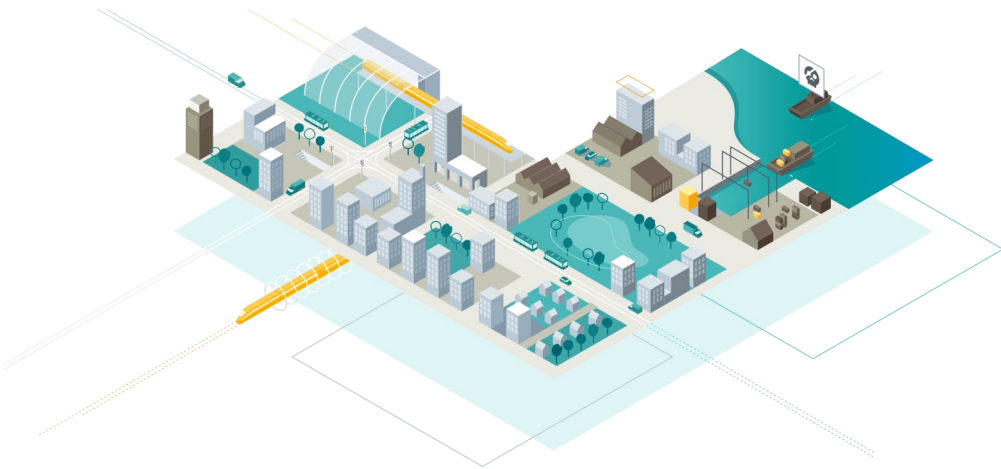


Siemens Insight Programme Portfolio

Welcome to the Siemens Insight Programme, or SIP, for short.

This student portfolio will act as your workbook for the programme. It will be the place where you complete activities and record your work. You can complete your portfolio as a digital version, or you can print it off and fill it out by hand. If you want to check your work, you can find activity answers at the back of the portfolio in the 'Answer Pages'.

The online modules provide the core of the programme and contain the full version of each module with all the information, instructions and tasks.

If you haven't already, now is the time to open up the online introduction module presentation.

Overview and Objectives

The Siemens Insight Programme is designed for students in KS3 and KS4.

Our aims for the programme are as follows:

1. Allow students to develop skills and knowledge related to engineering and technology
2. Provide students with an insight into Siemens
3. Allow students to develop 'essential skills' such as communication, leadership and teamwork, as well as broader knowledge, such as an awareness of potential career paths
4. Allow students to exemplify their skills and knowledge through an independent project

Skills Builder Partnership

Module Plan

	Title	Essential Skill	Module Length
Module 1	Welcome to Siemens	Listening	1 hour
Module 2	Engineering	Problem Solving	1 hour
Module 3	Innovation and Creativity	Creativity	1 hour
Module 4	Independent Project	Leadership	3-5 hours
Module 5	Working Together	Teamwork	1 hour
Module 6	Communication in the Workplace	Speaking	1 hour
Module 7	A Future in Engineering	Aiming High	1-2 hours
Module 8	Reflection	Staying Positive	30 minutes

Work Experience Team

David - Senior Design Engineer
David, a Senior design engineer at Siemens, has years of experience within the engineering industry. David uses Siemens NX to create digital twins of his designs before they are manufactured.

Sarah - Energy Engineer
Sarah is an energy engineer at Siemens Energy. Passionate about creating efficient and sustainable solutions, Sarah works to decarbonise the UK's energy network.

Oliver - Digitalisation Specialist
Oliver works for Siemens Digital Industries and helps to write software for the Siemens Internet of Things operating system, MindSphere.

Ava - Engineering Apprentice
Ava is completing her final year of her Level 4 Engineering apprenticeship at Siemens.

Module 1 - Welcome to Siemens

Learning Objectives

- Learn more about Siemens and what we do
- Develop the first essential skill of Listening

Listening

The Skills Builder Universal Framework defines Listening as:

The receiving, retaining and processing of information or ideas

Warm-up Task

Listening is one of the most important aspects of learning that impacts on academic success

- Buttery, 1990

Do you agree or disagree with this statement?

Why do you agree or disagree?

When have you had to listen carefully recently?

Project Task 1: What is Siemens?

How many Siemens employees are there in the UK?

Fill in the blanks:

Siemens is a digital pioneer focusing on the areas of e_____ and a_____

What are the six Siemens businesses?

There are _____ **Siemens locations in the UK and Ireland**

Write down four of the Siemens Topic Areas...

1.

2.

3.

4.

Project Task 2: #RolandUnplugged

Use this space to make notes on what you think are the most interesting or important parts of the #RolandUnplugged podcast episode.

Module 1 - Quiz

1) When was Siemens founded?
   - 1914 ☐
   - 1810 ☐
   - 1847 ☐

2) Siemens operates in approximately how many countries?
   - 20 ☐
   - 200 ☐
   - 120 ☐

3) Which of the following are Siemens Businesses?
   - Siemens Robotics ☐
   - Siemens Artificial Intelligence ☐
   - Smart Infrastructure ☐
   - Siemens Mobility ☐
   - Siemens Computer Development ☐
   - Digital Industries ☐

4) Listening is defined by the Skills Builder Partnership as…
   - Sitting quietly and nodding at the speaker ☐
   - Receiving, retaining and processing information or ideas ☐
   - Being aware of your surroundings ☐

5) Siemens plays a role in topics including artificial intelligence, cybersecurity and climate action?
   - True ☐
   - False ☐

Module 2 - Engineering

Learning Objectives

- Learn about and practice applying the engineering design process
- Develop the essential skill of Problem Solving

Problem Solving

The Skills Builder Universal Framework defines Problem Solving as:

The ability to find a solution to a situation or challenge

Warm-up Task

"Hi! I am really worried about this end of month report. It is due on Monday morning and I don't think I'm going to finish in time - I'm only half way through! It's Thursday morning now and I have some meetings this afternoon and tomorrow that will take up some time. What should I do?"

What further details or information you need to help Ben with his problem?

What is a possible solution to Ben's problem?

What is a pro and a con of this solution?

Project Task 1: The Engineering Design Process

Use the boxes below to write the seven stages of the engineering design process.

1.

2.

3.

4.

5.

6.

7.

Project Task 2: Siemens Energy Island

Simulation 1

Score

What went well...

Even better if...

Simulation 2

For this simulation, apply the engineering design process.

Use the table below to explain how you are applying each step of the process.

Engineering Design Process Step	I applied this step by...

Module 2 - Quiz

1) What is the engineering design process?
   - A set of steps engineers use to solve problems or challenges ☐
   - A method that engineers use to record their findings ☐
   - A set of steps engineers use when doing interior design ☐

2) Which of the following is NOT a step in the engineering design process?
   - Make a project timeline ☐
   - Test it ☐
   - Build a prototype ☐
   - Evaluate your solution ☐

3) What is a prototype?
   - A digital twin ☐
   - A 3D printed version ☐
   - A simple model that lets you test your design ☐
   - A completed product ☐

4) When designing an energy solution, it is important to find the balance between…
   - Tidal and wave facilities ☐
   - Different land types ☐
   - Cost, pollution and power supply ☐

5) Problem solving is defined by the Skills Builder Partnership as…
   - The ability to find solutions quickly and independently ☐
   - The ability to finds a solution to a situation or challenge ☐
   - The ability to point out problems or challenges ☐

Module 3 - Innovation and Creativity

Learning Objectives

- Appreciate the role of creativity within engineering
- Develop an awareness of Product Lifecycle Management software
- Develop the essential skill of Creativity

Creativity

The Skills Builder Universal Framework defines Creativity as:

The use of imagination and the generation of new ideas

Warm-up Task

A brick could also be used as a...

Project Task 1: Factory Tour

Write down the three job roles that you see during the 'Designing the Future' interactive and note how creativity is used in these roles.

Job Role	Creativity is necessary for this role because...

Project Task 2: Product Solutions

Here are my new ideas for how the product could be improved...

Module 3 - Quiz

1) Which of the following is NOT an engineering role?
   - Product Shopper ☐
   - Product Researcher ☐
   - Product Designer ☐

2) What does PLM stand for?
   - Product Lifecycle Management Software ☐
   - Production Lifetime Management Software ☐
   - Price Lowering Management Software ☐

3) PLM software is also known as what software?
   - Digital Brother ☐
   - Digital Copy ☐
   - Digital Twin ☐

4) PLM software helps the engineering process by...
   - Setting to-do lists and reminders ☐
   - Allowing managers to oversee everyone's actions ☐
   - Coordinating all the different processes in the product lifecycle ☐

5) Which of the following is NOT a component of the essential skill - Creativity?
   - Generating new ideas ☐
   - Imagining different situations ☐
   - Developing ideas using a range of strategies ☐
   - Effectively communicating your new ideas ☐

Module 4 - Independent Project

Learning Objectives

- Research, create and present an independent project
- Develop an awareness of sustainability
- Consider the essential skill of leadership

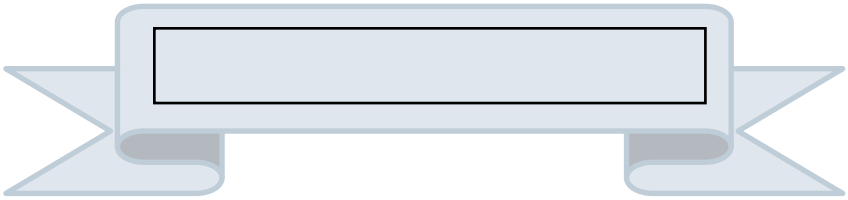
Leadership

The Skills Builder Universal Framework defines Leadership as:

Supporting, encouraging and developing others to achieve a shared goal

Warm-up Task

I think that



is a good leader

They have these attributes:

They do these things:

Independent Project

Use the following pages to present your independent project.

You can include writing, drawings and diagrams.

Insert images on this page

Insert images on this page

Insert images on this page

Insert images on this page

Insert images on this page

Insert images on this page

Module 5 - Working Together

Learning Objectives

- Recognise how engineers use team-work
- Develop the essential skill of Teamwork

Teamwork

The Skills Builder Universal Framework defines Teamwork as:

Working cooperatively with others towards achieving a shared goal

Warm-up Task

My perfect teammate ...

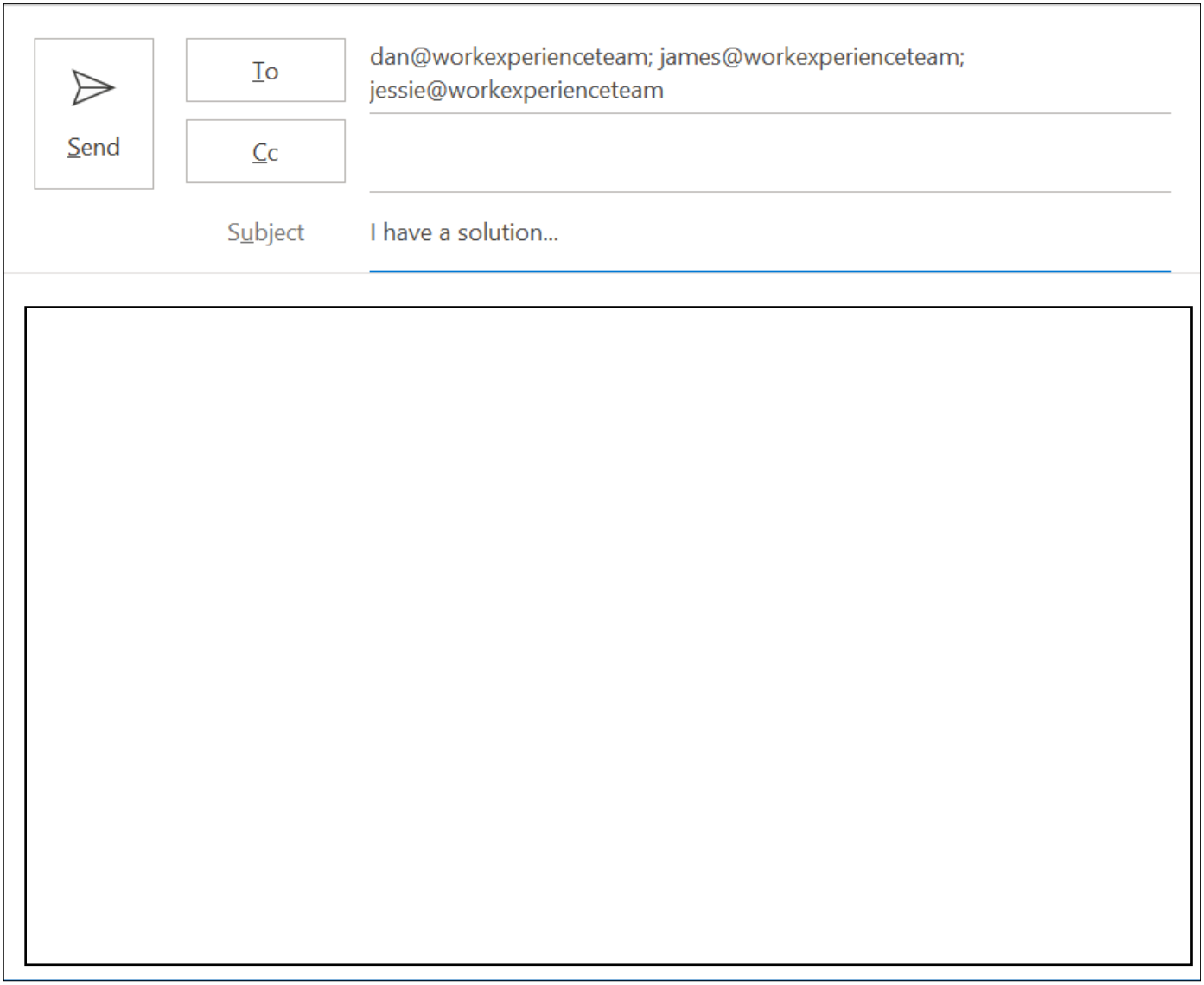
Project Task 1: Working Together

While playing the 'Lean Machines' interactive, write down 5 examples of where certain aspects of teamwork are used in an engineering production line.

Project Task 2: Event Planning

Where is the group discussion going wrong, and how could it be improved?

Use this email template to write your response to the group. In your response, consider how to manage unhelpful conflicts and move the team towards making a decision.



Module 5 - Quiz

1) Teamwork is defined by the Skills Builder Partnership as...
   - Working cooperatively with others towards achieving a shared goal ☐
   - Persuading others to see your point of view ☐
   - Not contributing to conflict within a team ☐

2) Engineers tend to work alone and do not use teamwork skills very often
   - True ☐
   - False ☐

3) Everyone should always be happy with final group decisions
   - True ☐
   - False ☐

4) An ideal teammate...
   - Agrees to whatever is suggested by the other team members ☐
   - Leads the team ☐
   - Fulfils expectations about being reliable, timely and positive ☐

5) It is better if only a few team members contribute to group decision making
   - True ☐
   - False ☐

Module 6 - Communication in the Workplace

Learning Objectives

- Develop the essential skill of Speaking
- Practice this skill in a Siemens setting through customer service exercises

Speaking

The Skills Builder Universal Framework defines Speaking as:

The oral transmission of information or ideas

Warm-up Task

If I could bring one object to a desert island, I would bring a…

And here's why…

Project Task 1: Customer Service

Watch the videos and answer the following questions:

Why is it important to understand and respond to the situation your customer is in when providing customer service?

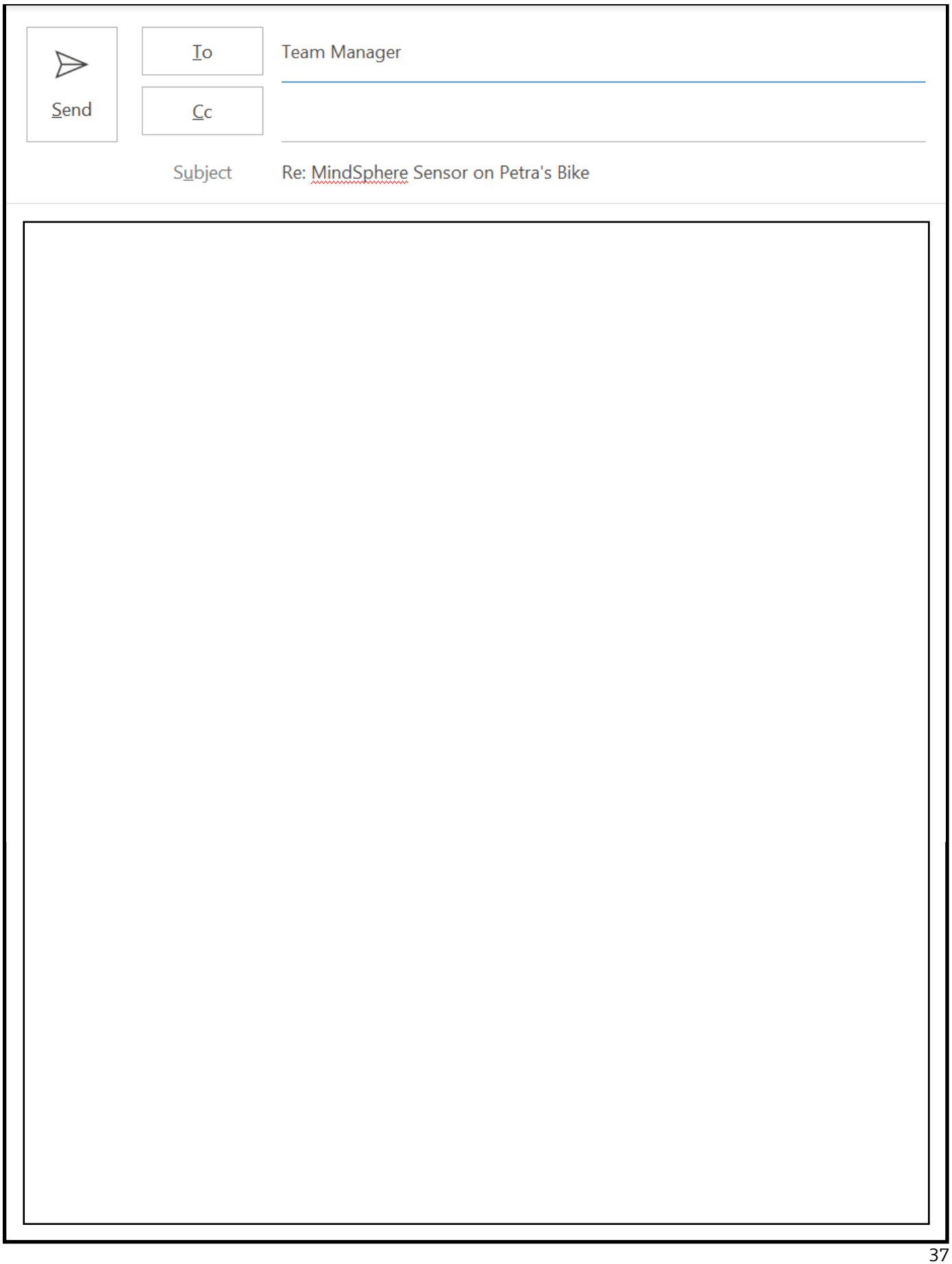
What are the general themes that make up good customer service?

What is the “good news - bad news - good news” sandwich and why is it useful?

How can you reflect on the customer services you provide? Why is it important to reflect?

Project Task 1: Providing Customer Service

Use the email template below to compose an email reply to Petra's team



Module 6 - Quiz

1) You should always have a set script ready when providing customer service
   - True ☐
   - False ☐

2) Which of the following are general themes of good customer service?
   - Speed ☐
   - Humour ☐
   - Use of company abbreviations ☐
   - Courtesy ☐
   - Attentiveness ☐

3) Customers always prefer to speak on the phone instead of using emails
   - True ☐
   - False ☐

4) Developing strong Speaking skills will help me to communicate with…
   - My colleagues ☐
   - My customers ☐
   - My business associates ☐
   - All of the above ☐

5) Which of the following are important parts of Speaking?
   - Presenting information in a logical order ☐
   - Using tone and expression to be engaging ☐
   - Speaking in the same way in all situations ☐

Module 7 - A Future in Engineering

Learning Objectives

- Develop awareness about the routes into an engineering career at Siemens
- Develop the essential skill of Aiming High
- Understand what makes a good CV
- Create a practice CV for an example work experience opportunity at Siemens

Aiming High

The Skills Builder Universal Framework defines Aiming High as:

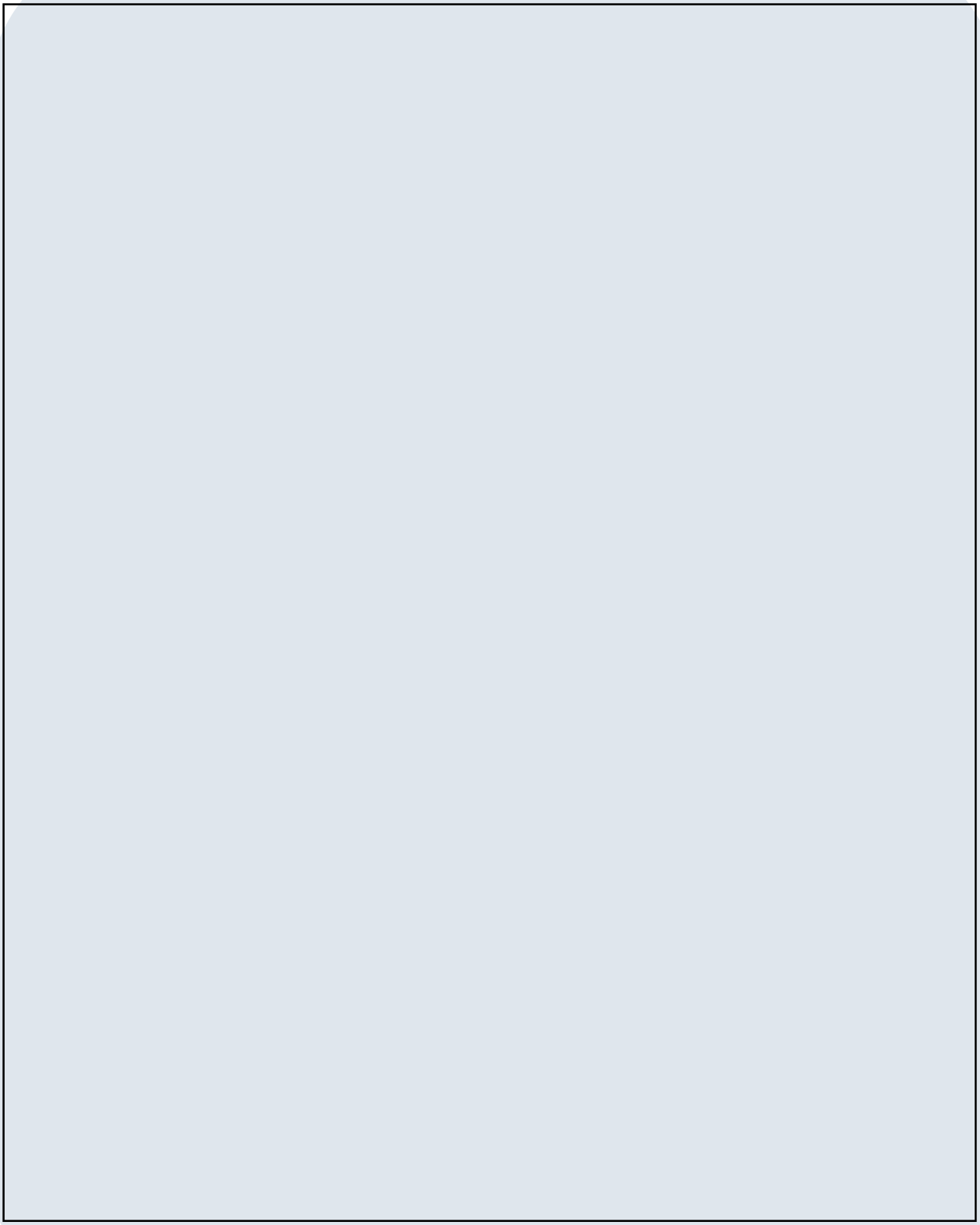
The ability to set clear, tangible goals and devise a robust route to achieving them

Warm-up Task

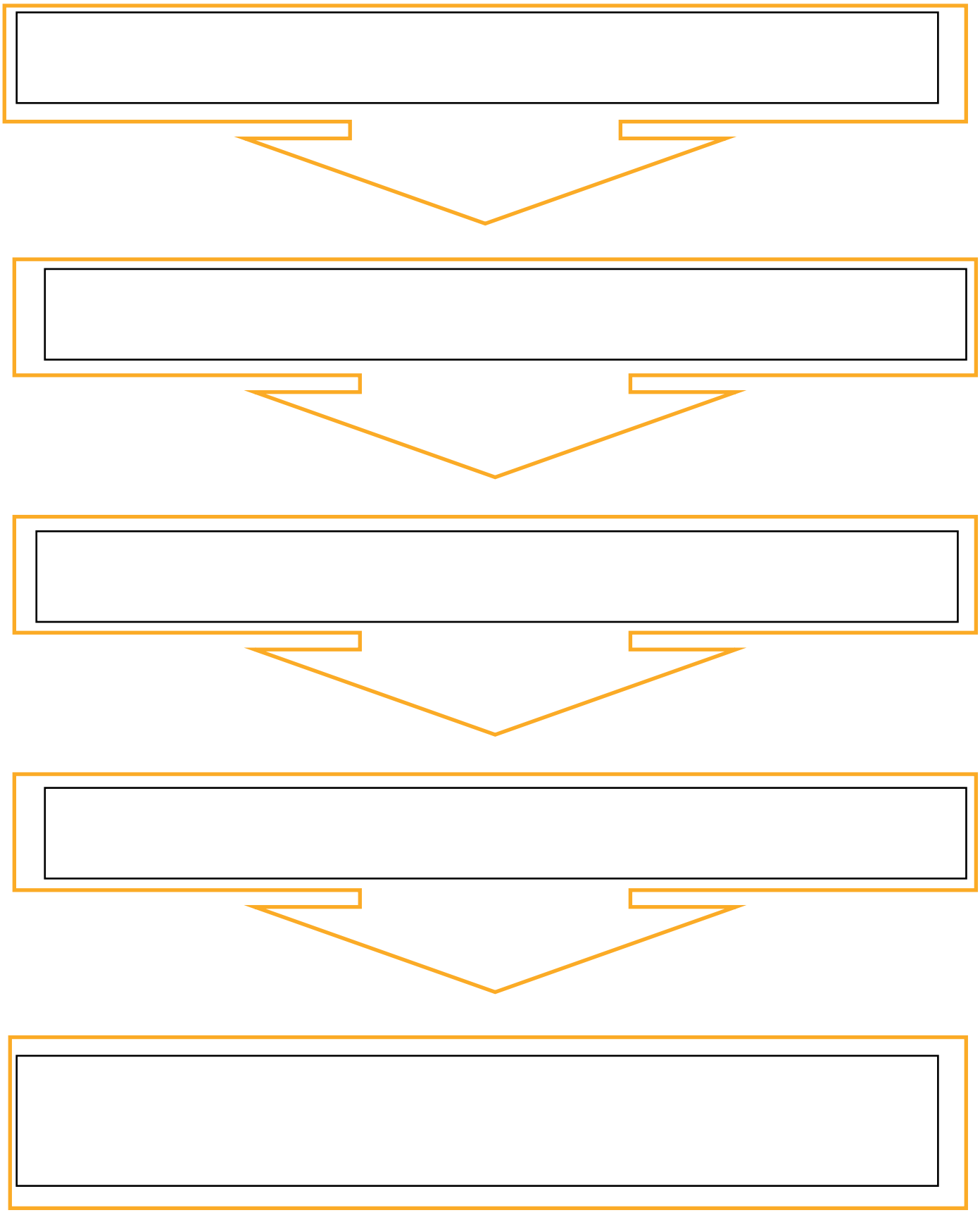
What does it mean to be successful?

Project Task 1: Routes into Engineering

Use this box to draw your own Career Pathway Diagram



My Career Pathway Plan could look like this...



Project Task 1: Building a CV

Use the spaces below to draft the content for a CV for this practice Siemens opportunity.

Contact Details

Personal Statement

Education History

Skills and Experiences

Interests and Hobbies

Module 7 - Quiz

1) How long should an average CV be?
   - Under half a page ☐
   - Around 1 page ☐
   - As long as you need it to be ☐

2) Which of the following does NOT belong in a CV?
   - Contact details ☐
   - Brief personal statement ☐
   - Your skills and experiences ☐
   - A list of your favourite TV shows ☐

3) How many different apprenticeships do Siemens offer?
   - 3 ☐
   - 5 ☐
   - 2 ☐

4) What qualifications are required for an Advanced Apprenticeship?
   - You do not need any qualifications for an Advanced Apprenticeship ☐
   - 4 GCSEs at Grade 4 or above ☐
   - Relevant A-levels or B-Tech equivalents ☐

5) Which of the following is an important part of Aiming High?
   - Achieving what your friends think is a good goal ☐
   - Telling everyone about what you've done well ☐
   - Working with care, pride and a positive approach ☐

Module 8 - Reflection

Learning Objectives

- Reflect on your experience of the Siemens Insight Programme
- Develop the essential skill of Staying Positive

Staying Positive

The Skills Builder Universal Framework defines Staying Positive as:

The ability to use tactics and strategies to overcome setbacks and achieve goals

Warm-up Task

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Reflection

Use the following questions to help you reflect on your experience throughout the Siemens Insight Programme. This is a great time to recognise all that you have achieved!

1. What are three new things that you have learned about throughout the SIP?

2. What part of the SIP have you enjoyed the most?

3. Which part have you found the most challenging?

4. Out of all the activities you have completed, which are you most proud of?

5. Which of the 8 Skills Builder Skills do you feel that you have developed the most during the SIP and why?

6. Have your views about engineering, technology and Siemens changed? If so, explain how they have changed.

7. Building on your achievement of finishing the Siemens Insight Programme, what is the next challenge that you would like to set yourself?

8. If you could go back and talk to your younger self, would you recommend that they do the Siemens Insight Programme, and if so, why?

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Answer Pages

Module 1 Answers

Project Task 1:

1) 8,700 employees in the UK
2) Electrification and Automation
3) 35 locations in the UK and Ireland
4) Smart Infrastructure, Digital Industries, Siemens Mobility, Healthineers, Siemens Advanta, Portfolio companies
5) Topic areas include: Cybersecurity, Artificial Intelligence, Internet of Things, Climate Change, Siemensstadt, Digital Enterprise, Expo 2020 Dubai, Reducing the Electricity Divide, The Way Forward, FC Bayern, Smart Infrastructure and Siemens Partners

Quiz:

1) 1847
2) 200
3) Smart Infrastructure, Siemens Mobility, Digital Industries
4) Receiving, retaining and processing information or ideas
5) True

Module 2 Answers

Project Task :

The seven steps of the engineering design process are:
1) Define the problem
2) Research
3) Develop a possible solution
4) Design the solution
5) Build a prototype
6) Test it
7) Evaluate your solution

Quiz:

1) A set of steps engineers use to solve problems or challenges
2) Make a project timeline
3) A simple model that lets you test your design
4) Cost, pollution and power supply
5) The ability to find a solution to a situation or challenge

Module 3 Answers

Quiz:

1) Product Shopper
2) Product Lifecycle Management Software
3) Digital Twin
4) Coordinating all the different processes in the product lifecycle
5) Effectively communicating your new ideas

Module 5 Answers

Quiz:

1) Working cooperatively with others towards achieving a shared goal
2) False
3) False
4) Fulfils expectations about being reliable , timely and positive
5) False

Module 6 Answers

Quiz:

1) False
2) Speed, Courtesy, Attentiveness
3) False
4) All of the above
5) Presenting information in a logical order; Using tone and expression to be engaging

Module 7 Answers

Quiz:

1) 1 page
2) Your favourite TV shows
3) 3
4) 4 GCSEs at Grade 4 or above
5) Working with care, pride and a positive approach

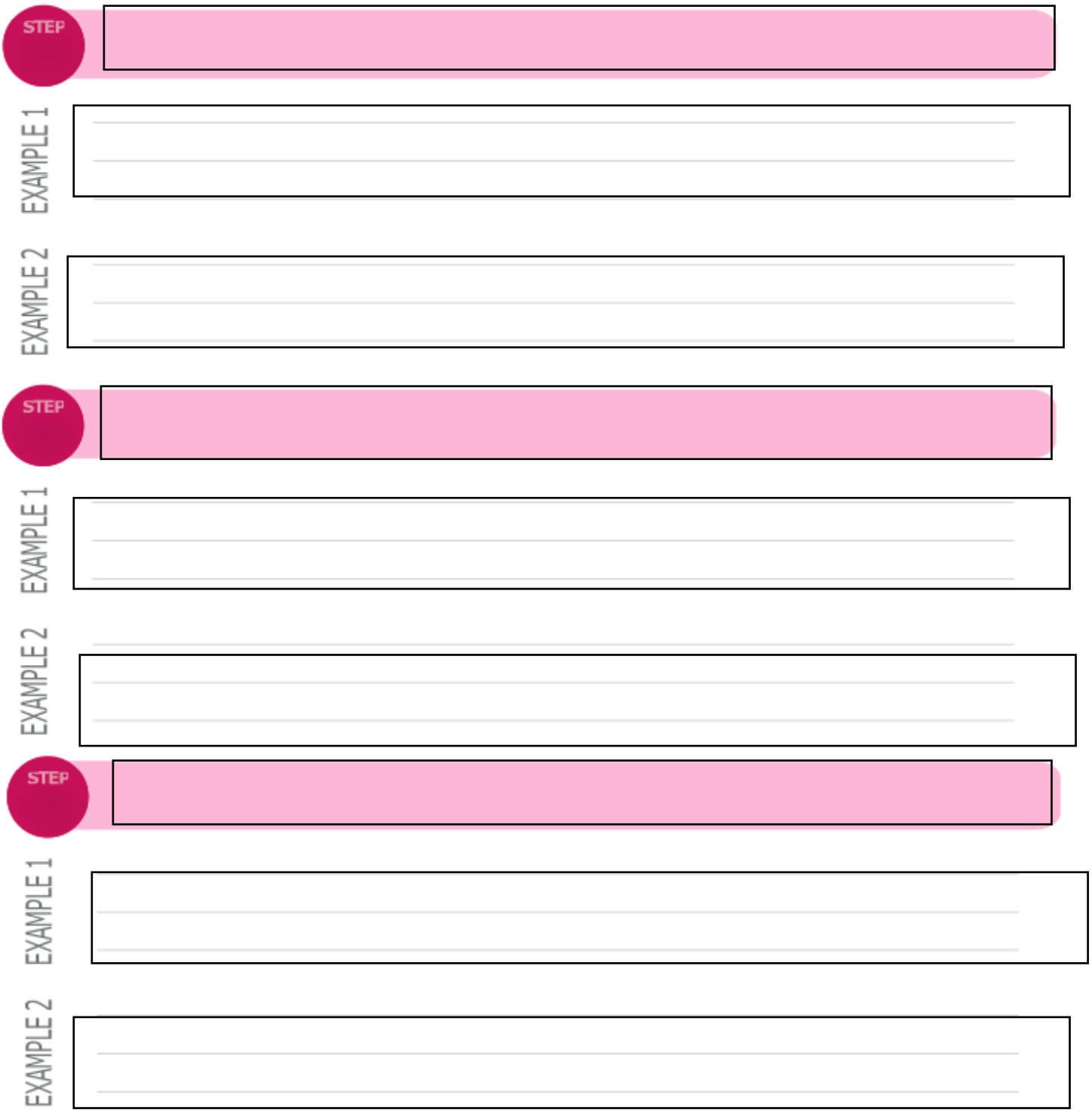
SIEMENS

Skills Builder Passport

Skills Builder
PARTNERSHIP

Welcome to your Listening passport!

STEP 0	I listen to others without interrupting	○
STEP 1	I listen to others and can remember short instructions	○
STEP 2	I listen to others and can ask questions if I don't understand	○
STEP 3	I listen to others and can tell someone else what it was about	○
STEP 4	I listen to others and can tell why they are communicating with me	○
STEP 5	I listen to others and record important information as I do	○
STEP 6	I show I am listening by how I use eye contact and body language	○
STEP 7	I show I am listening by using open questions to deepen my understanding	○
STEP 8	I show I am listening by summarising or rephrasing what I have heard	○
STEP 9	I am aware of how a speaker is influencing me through their tone	○
STEP 10	I am aware of how a speaker is influencing me through their language	○


STEP
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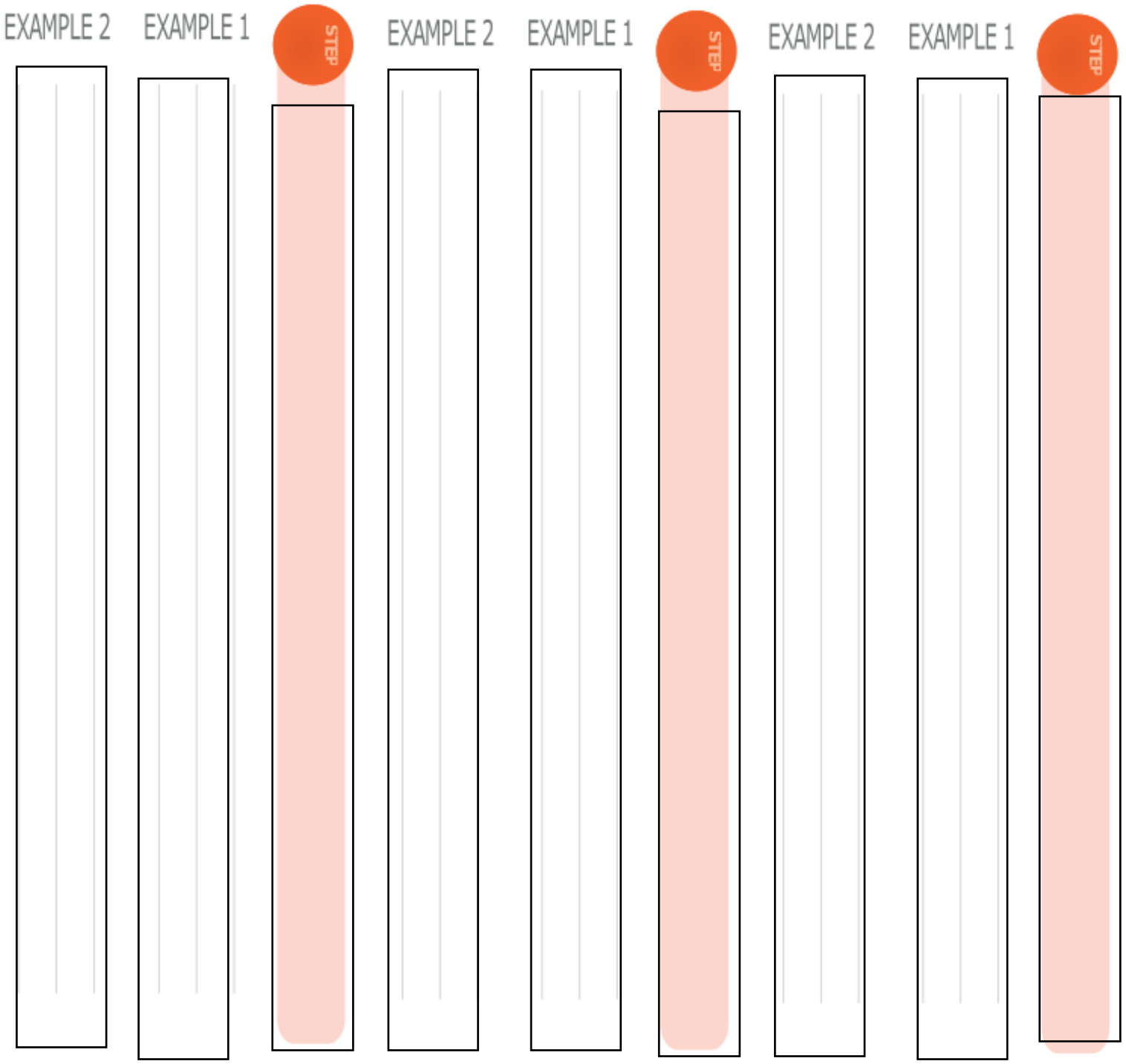
Skills Builder PARTNERSHIP

Welcome to your Problem Solving passport!

STEP 0	I complete tasks by following instructions	○
STEP 1	I complete tasks by finding someone to help if I need them	○
STEP 2	I complete tasks by explaining problems to someone for advice if I need	○
STEP 3	I complete tasks by finding information I need myself	○
STEP 4	I explore problems by creating different possible solutions	○
STEP 5	I explore problems by thinking about the pros and cons of possible solutions	○
STEP 6	I explore complex problems by identifying when there are no simple technical solutions	○
STEP 7	I explore complex problems by building my understanding through research	○
STEP 8	I explore complex problems by analysing the causes and effects	○
STEP 9	I create solutions for complex problems by generating a range of options	○
STEP 10	I create solutions for complex problems by evaluating the positive and negative effects of a range of options	○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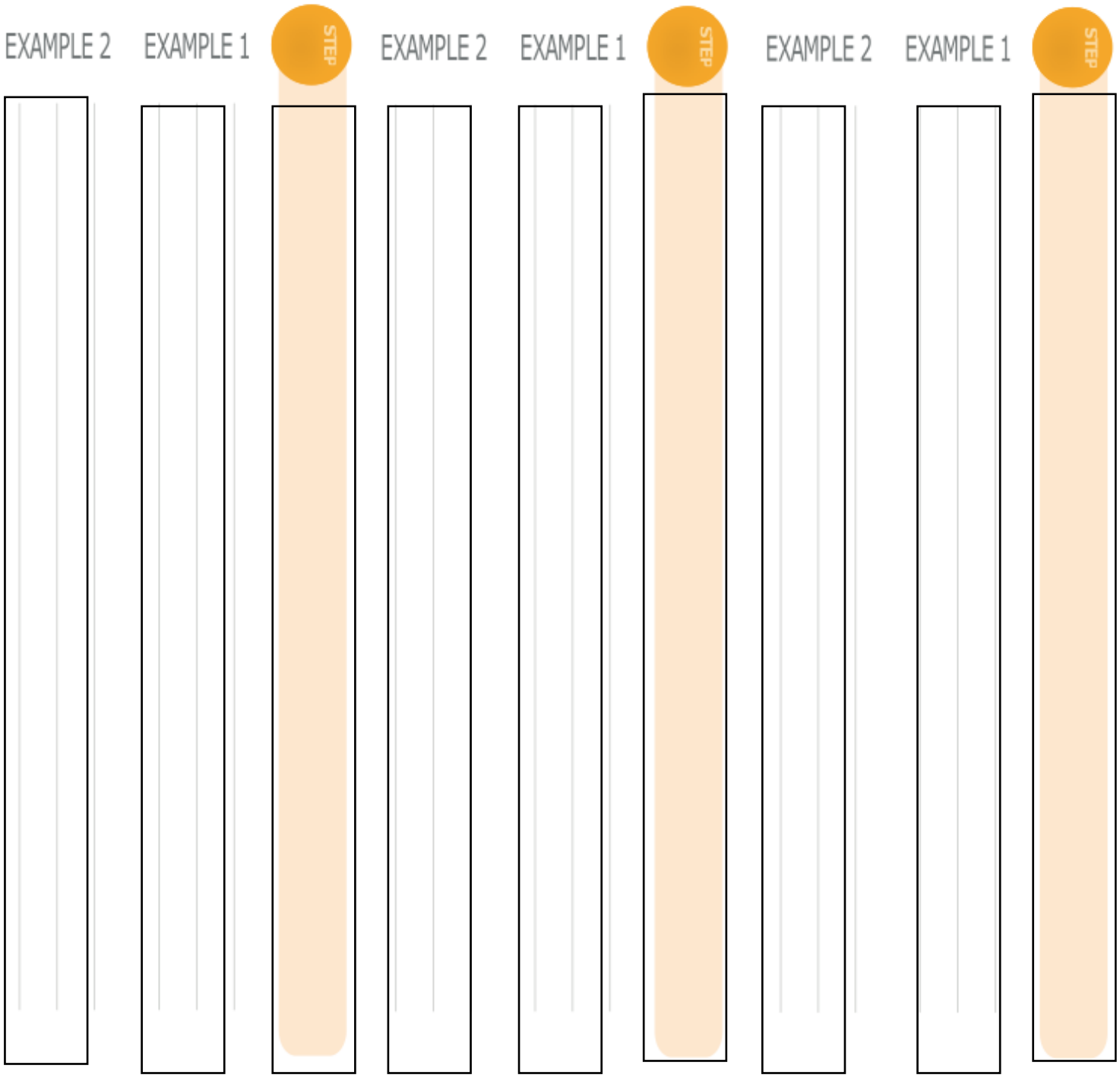
Skills Builder
PARTNERSHIP

Welcome to your Creativity passport!

STEP 0	I imagine different situations	○
STEP 1	I imagine different situations and can say what I imagine	○
STEP 2	I imagine different situations and can bring them to life in different ways	○
STEP 3	I generate ideas when I've been given a clear brief	○
STEP 4	I generate ideas to improve something	○
STEP 5	I generate ideas by combining different concepts	○
STEP 6	I use creativity in the context of work	○
STEP 7	I use creativity in the context of my wider life	○
STEP 8	I develop ideas by using mind mapping	○
STEP 9	I develop ideas by asking myself questions	○
STEP 10	I develop ideas by considering different perspectives	○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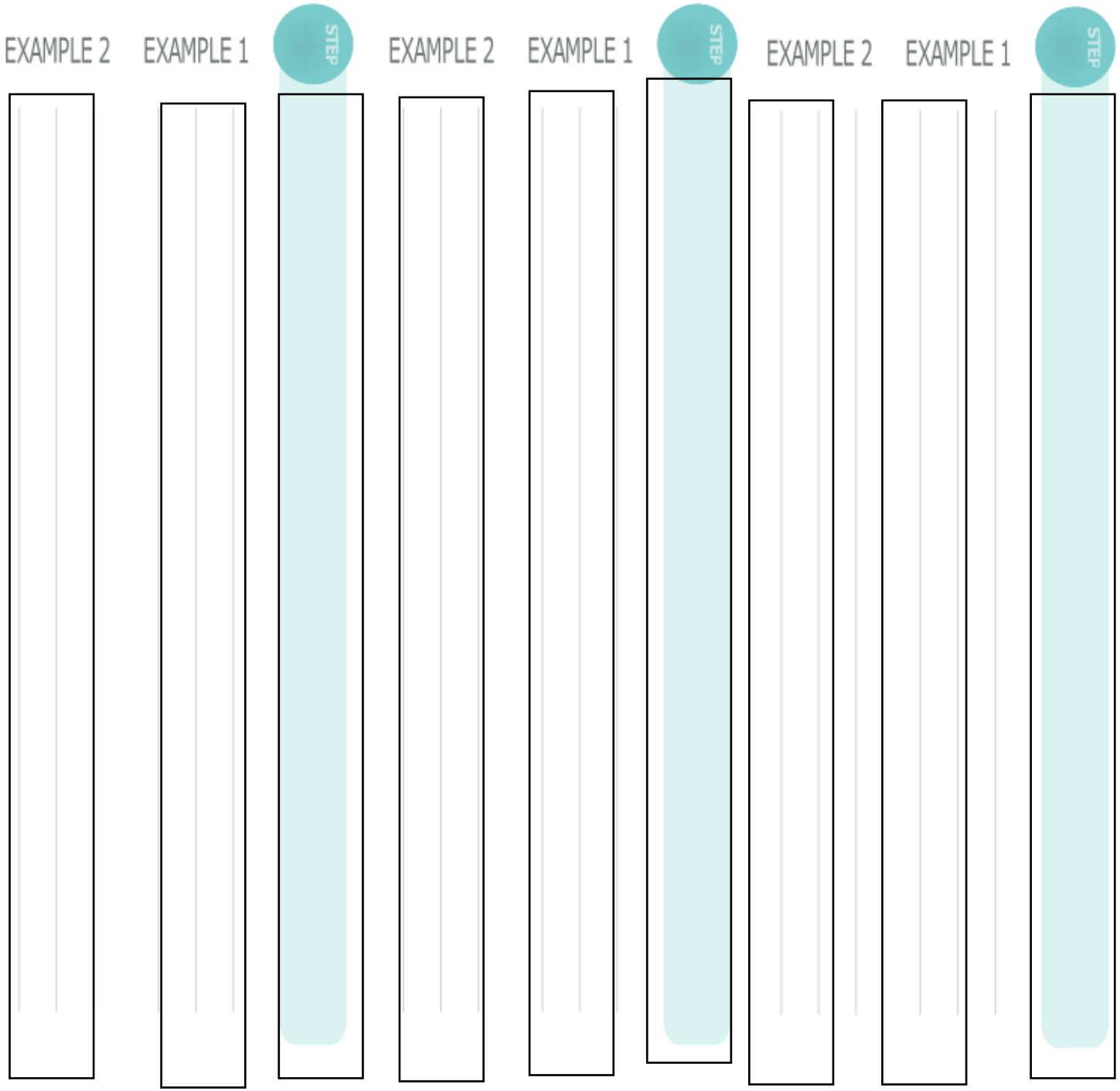
Skills Builder
PARTNERSHIP

Welcome to your Leadership passport!

STEP 0	I know how I am feeling about something	○
STEP 1	I know how to explain my feelings about something to my team	○
STEP 2	I know how to recognise others' feelings about something	○
STEP 3	I manage dividing up tasks between others in a fair way	○
STEP 4	I manage time and share resources to support completing tasks	○
STEP 5	I manage group discussions to reach shared decisions	○
STEP 6	I manage disagreements to reach shared solutions	○
STEP 7	I recognise my own strengths and weaknesses as a leader	○
STEP 8	I recognise the strengths and weaknesses of others in my team	○
STEP 9	I recognise the strengths and weaknesses of others in my team, and use this to allocate roles accordingly	○
STEP 10	I support others through mentorship	○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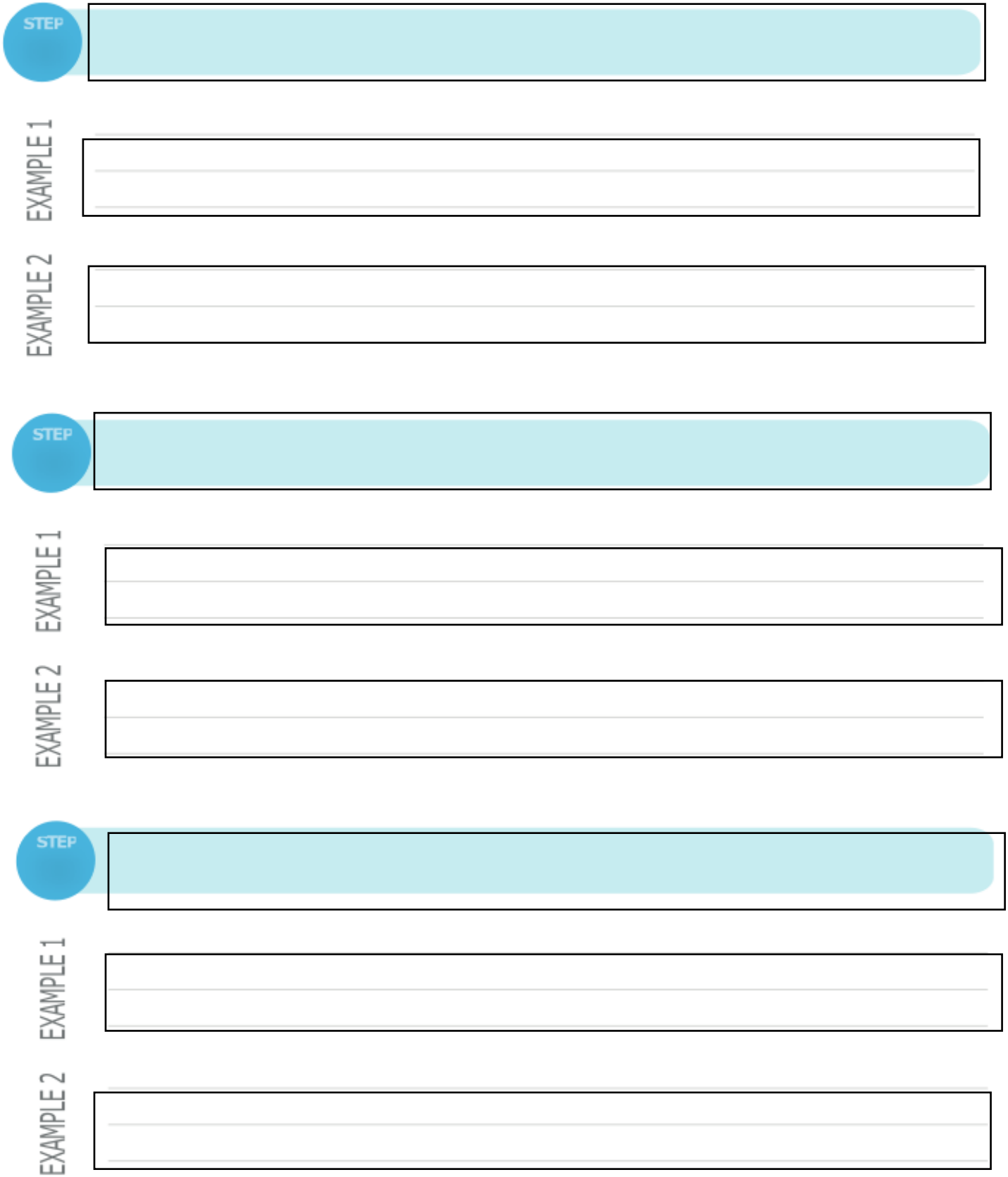
Skills Builder PARTNERSHIP

Welcome to your Teamwork passport!

- STEP 0 I work with others in a positive way ○
- STEP 1 I work well with others by behaving appropriately ○
- STEP 2 I work well with others by being on time and reliable ○
- STEP 3 I work well with others by taking responsibility for completing my tasks ○
- STEP 4 I work well with others by supporting them if I can do so ○
- STEP 5 I work well with others by understanding and respecting diversity of others' cultures, beliefs and backgrounds ○
- STEP 6 I contribute to group decision making ○
- STEP 7 I contribute to group decision making, whilst recognising the value of others' ideas ○
- STEP 8 I contribute to group decision making, encouraging others to contribute ○
- STEP 9 I improve the team by not creating unhelpful conflicts ○
- STEP 10 I improve the team by resolving unhelpful conflicts ○


STEP
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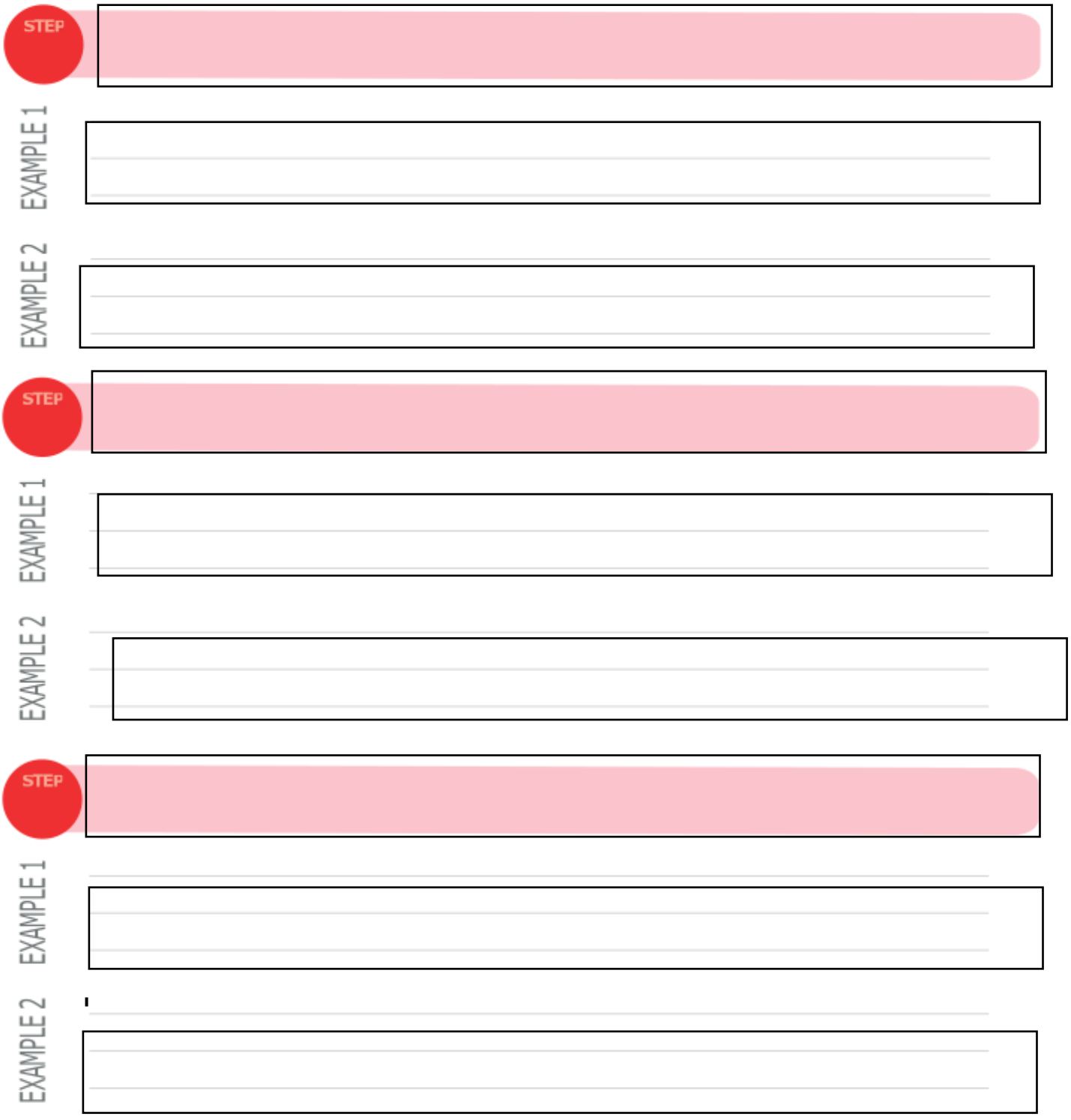
EXAMPLE 2

Skills Builder
PARTNERSHIP

Welcome to your Speaking passport!

STEP 0	I speak clearly to someone I know	○
STEP 1	I speak clearly to small groups of people I know	○
STEP 2	I speak clearly to individuals and small groups I do not know	○
STEP 3	I speak effectively by making points in a logical order	○
STEP 4	I speak effectively by thinking about what my listeners already know	○
STEP 5	I speak effectively by using appropriate language	○
STEP 6	I speak effectively by using appropriate tone, expression and gesture	○
STEP 7	I speak engagingly by using facts and examples to support my points	○
STEP 8	I speak engagingly by using visual aids to support my points	○
STEP 9	I speak engagingly by using tone, expression and gesture to engage listeners	○
STEP 10	I speak adaptively by changing my language, tone and expression depending on the response of listeners	○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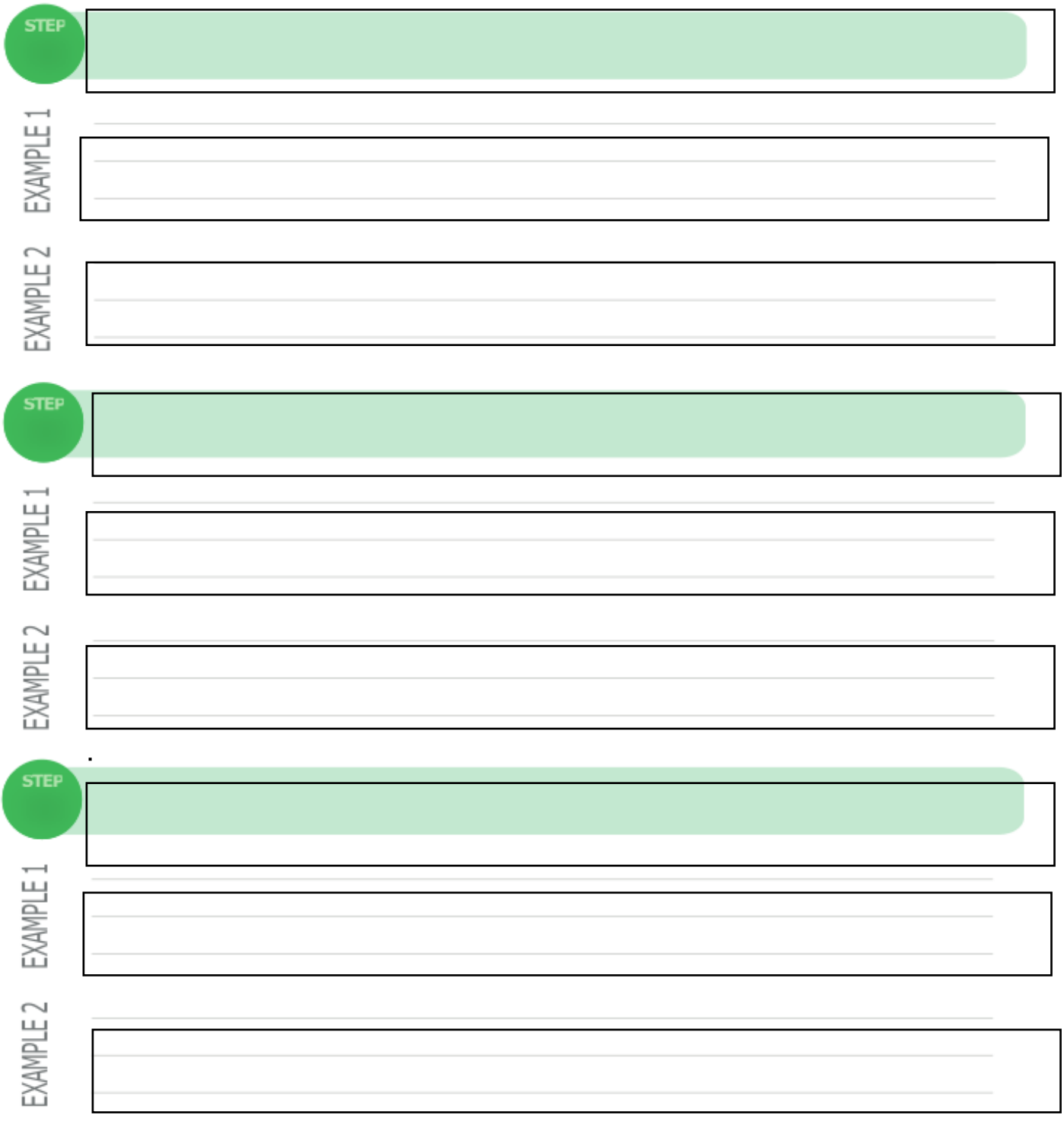
EXAMPLE 2

Skills Builder
PARTNERSHIP

Welcome to your Aiming High passport!

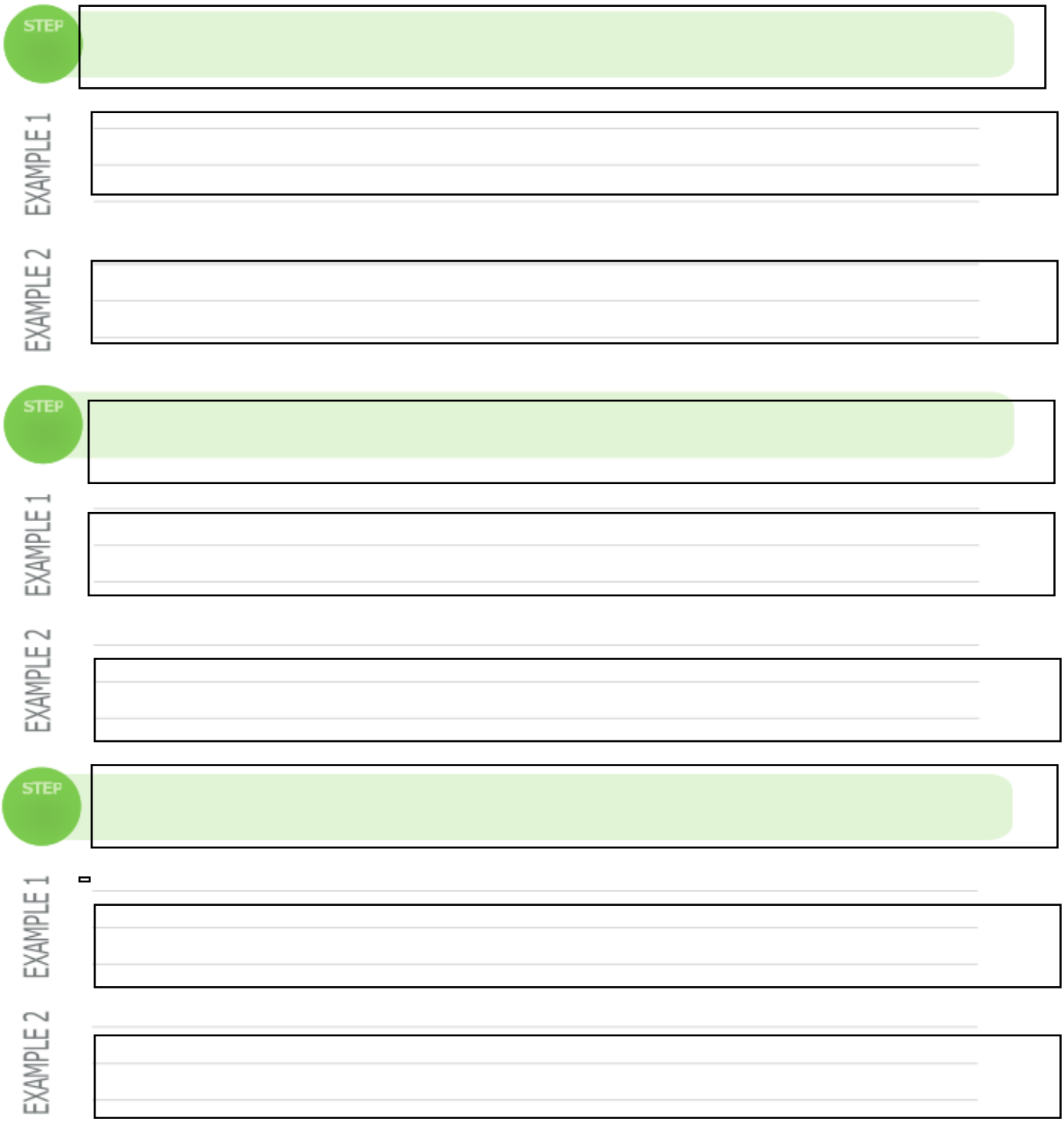
STEP 0	I know when I am finding something too difficult	○
STEP 1	I know what doing well looks like for me	○
STEP 2	I work with care and attention to detail	○
STEP 3	I work with pride when I am being successful	○
STEP 4	I work with a positive approach to new challenges	○
STEP 5	I set goals for myself	○
STEP 6	I set goals informed by an understanding of what is needed	○
STEP 7	I set goals, ordering and prioritising tasks to achieve them	○
STEP 8	I set goals and secure the right resources to achieve them	○
STEP 9	I set goals and plan to involve others in the best way	○
STEP 10	I create plans that are informed by my skill set and that of others	○


STEP
EXAMPLE 1
EXAMPLE 2
STEP
EXAMPLE 1
EXAMPLE 2
STEP
EXAMPLE 1
EXAMPLE 2

Skills Builder PARTNERSHIP

Welcome to your Staying Positive passport!

STEP 0	I can tell when I feel positive or negative	○
STEP 1	I can tell when others feel positive or negative	○
STEP 2	I keep trying when something goes wrong	○
STEP 3	I keep trying and stay calm when something goes wrong	○
STEP 4	I keep trying when something goes wrong, and think about what happened	○
STEP 5	I keep trying when something goes wrong and help cheer others up	○
STEP 6	I keep trying when something goes wrong and encourage others to keep trying too	○
STEP 7	I look for opportunities in difficult situations	○
STEP 8	I look for opportunities in difficult situations, and share these with others	○
STEP 9	I look for opportunities in difficult situations, and adapt plans to use these opportunities	○
STEP 10	I look for opportunities in difficult situations, and create new plans to use these opportunities	○


STEP
EXAMPLE 1
EXAMPLE 2
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