

imyc Challenge

13-14 Years (M3)



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Learning Goals

Art Learning Goals

Students will:

4.01 Know that the study of art is concerned with visual, tactile and personal expression used to share and express emotions, ideas and values

 **4.05 Be able to evidence how artists, craftspeople and designers from a variety of traditions from around the world use materials, forms and techniques to express their feelings, observations and experiences**

 **4.06 Be able to use the elements of art and principles of design to discuss and critique works of art showing understanding, respect and enjoyment as appropriate**

 **4.07 Be able to create an original work of art using a variety of processes, materials, tools and media to express their ideas, thoughts, emotions and views of the world**

 **4.09 Be able to evaluate their initial artistic products and adjust the work to better suit their expression**

4.11 Begin to develop an understanding of the benefits, limitations and consequences of visual communication media around the world such as film, the Internet, print, television and video

Geography Learning Goals

Students will:

4.01 Know that the study of geography is concerned with places and environments in the world

4.02 Know about the main physical and human features and environmental issues in particular localities

4.03 Know about the varying geographical patterns and physical processes of different places

4.04 Know about the geography, weather and climate of particular localities

4.05 Know about the similarities and differences between particular localities

4.06 Know how the features of particular localities influence the nature of human activities within them

4.07 Know about recent and proposed changes in particular localities

4.08 Know how people and their actions affect the environment and physical features of a place

4.10 Know how the weather and climate affect, and are affected by, human behaviour

4.11 Know how the geography of a region shapes economic development

 **4.13 Be able to use and interpret globes, maps, atlases, photographs, computer models and satellite images in a variety of scales**

 **4.15 Be able to describe geographic locations using standard measures**

 **4.16 Be able to use appropriate geographical vocabulary to describe and interpret their surroundings as well as other countries and continents**

4.19 Be able to use maps in a variety of scales to locate the position, geographical features and social environments of other countries and continents to gain an understanding of daily life

4.21 Be able to explain how places and people are interdependently linked through the movement of goods and people

4.22 Develop an understanding of how localities are affected by natural features and processes

4.23 Develop an understanding of how and why people seek to manage and sustain their environment

History Learning Goals

Students will:

4.02 Know that the study of history is concerned with the past in relation to the present

4.03 Know the history of the periods being studied

4.04 Know about the ideas, beliefs, attitudes and experiences of people in the past

4.07 Be able to enquire into historical questions and their effects on people's lives

 **4.08 Be able to describe how the countries studied have responded to the conflicts, social changes, political changes and economic developments that represent their history**

 **4.09 Be able to describe aspects of the past from a range of sources**

 **4.10 Be able to describe and identify the causes for and the results of historical events, situations and changes in the periods they have studied**

 **4.11 Be able to describe and make links between the main events, situations and changes both within and across periods**

4.14 Be able to select and record information relevant to a historical topic

 **4.16 Be able to describe how certain aspects of the past have been represented and interpreted in different ways**

4.17 Develop an understanding of how historical sources can be different from and contradict one another and that they reflect their context of time, place and viewpoint

ICT & Computing Learning Goals

Students will:

4.01 Know that the study of ICT and Computing is concerned with designing and applying technology to gather, use and exchange information

 **4.05 Be able to select and use technology and the internet safely, responsibly, respectfully, creatively and competently, for a range of purposes and audiences**

 **4.06 Be able to manipulate, combine and present different forms of information from different sources in an organised and efficient way**

4.13 Develop an understanding of how the internet, the World Wide Web and Cloud computing function, and how they facilitate communication and creativity

4.14 Know how to produce and edit text, image, audio, and video. Recognise an increasing range of different file types, and how these can be converted for different purposes

4.15 Be able to communicate effectively using a range of digital tools including online environments

4.16 Be able to evaluate digital tools analytically, identifying and using appropriate hardware and software to solve a variety of problems

 **4.18 Be able to gather and interrogate information by framing questions appropriately**

4.21 Develop an understanding of how digital tools can be applied analytically to solve problems by designing, creating and using computer models, e.g. 3D design using computer assisted design software, gaming software and spreadsheets to create simulations

4.24 Be able to design, create, use and evaluate creative digital solutions for authentic purposes, considering the end-user

4.25 Develop an understanding of the user-centered design process and apply this in practice when creating digital content

Language Arts Learning Goals

Students will:

4.01 Be able to play a variety of roles in group discussions by reading required material and being prepared



4.02 Be able to ask and answer questions to obtain clarification and elaboration with relevant evidence

4.03 Be able to integrate strategies and tools such as multimedia to enhance listening comprehension and add interest

4.04 Be able to use the content, intention and perspective of what is said to them in a variety of situations



4.05 Be able to convey information, experiences, arguments and opinions clearly and confidently when speaking to others

4.06 Be able to use appropriate vocabulary in speech

4.07 Be able to analyse the purpose and motivation of the information presented



4.08 Be able to use spoken language that is appropriate to the situation and purpose



4.09 Be able to read and comprehend for different purposes including stories, dramas, poems and literature



4.10 Be able to use a variety of strategies to understand meaning



4.11 Be able to determine the theme of a text and its relationship to plot, setting and characters



4.12 Be able to cite evidence that supports explicit and inferred meaning from the text

4.13 Be able to distinguish between fact and fiction

4.14 Be able to compare and contrast information from a variety of texts to understand how it affects meaning and style



4.15 Be able to read for pleasure and enjoyment

4.16 Develop an understanding for how meaning is constructed using word choice, tone and timing



4.17 Be able to write in a range of different forms appropriate for their purpose and readers

4.18 Be able to write narratives to communicate real or imagined events using descriptive details and event sequences

4.19 Be able to write arguments to support claims using evidence from texts and research from credible sources

4.20 Be able to write informative or explanatory texts to examine a topic and share ideas in an organised manner



4.21 Be able to use writing to organise thoughts, experiences, emotions and preferences

4.22 Be able to write short reports to answer a question

 **4.23 Be able to use a range of strategies and tools for planning, drafting and revising their writing**

4.24 Be able to write neatly and legibly

4.25 Know the rules for grammatical construction and usage

4.26 Know the rules for spelling, punctuation and capitalisation

4.27 Be able to recognise the devices used by an author to accomplish a purpose

4.28 Be able to recognise different forms, genres and themes

4.29 Be able to explain and describe the main features, ideas, themes, events, information and characters in a text

4.30 Be able to recognise and use figures of speech

4.31 Be able to recognise and use descriptive language

4.32 Be able to recognise and use literal language

4.33 Be able to recognise and use different forms, styles and genres

4.34 Be able to recognise and use different linguistic conventions

4.35 Develop an understanding that language is used differently in different situations

4.36 Develop an understanding that language and the way it is used affects the relationships between people

4.37 Develop an understanding that there are cultural differences between the way language is used by different people and in different situations

4.38 Develop an understanding that the meaning of language can be influenced by the situation, form, unexpressed intentions, physical posture, facial expression and gestures

4.39 Develop an understanding that forms of communication benefit from the application of rules

4.40 Know that everyone has a creative side

4.41 Be able to improvise a play, using the roles, situation and elements of a story

4.42 Be able to perform a scripted play

 **4.43 Be able to make use of voice, language, posture, movement and facial expression**

4.44 Be able to make use of scenery, stage properties, costume and make-up

4.45 Be able to evaluate their own performance and that of others

4.46 Be able to respond to a performance identifying the key elements and devices

Music Learning Goals

Students will:

4.01 Know that the study of music is concerned with musical expression and communication

4.02 Know the uses of the elements of music

4.03 Know about the origins and history of musical styles and instruments

4.04 Know the characteristics of representative music genres and styles from a variety of cultures

4.05 Know the functions music serves, the roles of musicians and the conditions under which music is typically performed in several cultures

4.09 Be able to make links between music and other disciplines taught in school

4.10 Be able to create or compose short pieces within specified parameters

 **4.11 Be able to perform a repertoire of music, alone or with others, paying attention to performance practice, breath control, posture and tone quality**

4.12 Be able to make judgments about pieces of music, showing understanding, appreciation, respect and enjoyment as appropriate

4.13 Be able to display a range of emotions while playing instruments and singing

4.14 Be able to improvise, extend or create music to express emotion, ideas, creativity and imagination

 **4.15 Be able to perform as part of an ensemble and contribute to the overall experience of the collaboration**

 **4.16 Be able to consider pieces of music in terms of meaning, mood, structure, place and time**

4.17 Understand that the work of musicians is influenced by their environment and experiences

Physical Education Learning Goals

Students will:

4.01 Know that the study of physical education is concerned with healthy lifestyle choices and activity which lead to physical, emotional and mental balance

4.04 Know how to avoid and reduce injuries

4.05 Know how to respond to challenges and disappointments with confidence and appropriate emotions during athletic events

 **4.06 Be able to steadily improve performance with control, coordination, precision and consistency in a range of physical skills and techniques whenever possible**

4.11 Be able to identify the features of a good physical performance

4.12 Be able to evaluate their own performance objectively and make a plan of action

 **4.14 Be able to use physical movement as a means of expression, enjoyment, communication and art**

4.16 Develop an understanding of how physical activity affects the body, the mind and emotions

4.18 Develop an understanding of the importance of safety procedures and lifesaving techniques

Science Learning Goals

Students will:

 **4.02 a) Select a scientific issue to investigate and formulate a research question that recognises a potential relationship between two variables, and generate a hypothesis**

 **4.02 b) Plan an investigation and make predictions**

 **4.02 c) Select appropriate apparatus and sampling groups, and identify health and safety issues**

 **4.02 d) Make systematic and accurate measurements to gather data to test a hypothesis**

 **4.02 e) Record and present his/her findings accurately using the most appropriate medium, scientific vocabulary and conventions**

 **4.02 f) Identify patterns in the results and draw conclusions based on the evidence**

 **4.02 g) Suggest ways in which his/her investigations and working methods could be improved**

4.02 h) Relate their own investigations to wider scientific ideas

4.48 Know about the major types and sources of energy and how they are used and measured

4.49 Know that energy can be stored or transferred, but not created or destroyed

4.50 Know about the nature and effect of different types of forces, including balanced and unbalanced forces

4.51 Know about the effects of forces on motion and Newton's laws of motion

4.62 Be able to define mass, weight, speed, velocity and acceleration and explain differences between them

4.63 Be able to calculate average speed using time and distance measurements

4.64 Be able to represent and interpret a journey on distance-time graphs

4.65 Be able to measure different types of forces

4.66 Be able to use diagrams to illustrate the strength and direction of forces and resultant forces in one dimension

4.73 Develop an understanding of energy, its sources, uses and manifestations in multiple phenomena

4.74 Develop an understanding of the conservation and transfer of energy in a system

4.75 Develop an understanding of the relationships between time, distance, velocity and acceleration

4.76 Develop an understanding of the effects of forces on objects and that they can be used to predict stability or instability in systems

Technology Learning Goals

Students will:

4.01 Know that technology is concerned with designing and making systems that aid the needs of a society

4.02 Know how the lives of people in different countries are affected by the extent of technological advance

4.03 Know how to combine creativity with skills to predict new ideas and inventions

4.05 Know that the quality of a product depends on how well it is made and how well it meets its intended purpose



4.07 Be able to investigate the way in which simple products in everyday use are designed and made and how they work



4.10 Be able to work with a variety of tools and materials confidently and safely to create goods and products

4.11 Be able to test and evaluate the construction of their own work and improve on it

4.12 Be able to evaluate the effectiveness of simple products in everyday use

4.13 Be able to plan for a healthy and nutritious dish by using the properties, seasonality and characteristics of a broad range of ingredients

4.16 Develop an understanding of developments in design and technology and how technology can impact individuals, society and the environment.

Art Introduction

Big Idea

Facing up to or overcoming problems and barriers increases possibilities in our lives.

Explaining the Theme

The process of creating an artwork involves identifying the idea, feeling or message which we want to convey and then considering the problem of how to achieve this using the materials, techniques and approaches at our disposal, whilst adhering to a specific brief or other limitations. Successfully communicating our ideas and emotions to others through images can be a difficult task, but overcoming this barrier by learning to use artistic elements and materials effectively opens up a wide range of possibilities for an artist to express themselves, to explore new ways of communicating visually, and to connect with others in a very powerful way.

Art Learning Goals

Students will:

4.01 Know that the study of art is concerned with visual, tactile and personal expression used to share and express emotions, ideas and values

 **4.05 Be able to evidence how artists, craftspeople and designers from a variety of traditions from around the world use materials, forms and techniques to express their feelings, observations and experiences**

 **4.06 Be able to use the elements of art and principles of design to discuss and critique works of art showing understanding, respect and enjoyment as appropriate**

 **4.07 Be able to create an original work of art using a variety of processes, materials, tools and media to express their ideas, thoughts, emotions and views of the world**

 **4.09 Be able to evaluate their initial artistic products and adjust the work to better suit their expression**

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Art Journaling Questions

- What are you getting better at that if this wasn't a school lesson you might have given up on?
- What have been the main problems or barriers you have faced throughout this unit? Why?
- What problems did you overcome throughout this unit? How?
- Has developing your skills and overcoming problems to get to grips with new techniques made you think of your future artwork and your own sense of being an artist any differently?
- Do you feel that you now have a deeper awareness of how to visually communicate your ideas? What new possibilities do you feel are open to you now?
- Did you find working alone to be challenging? Why / In what ways?
- Did you find working as a group challenging? Why / In what ways?
- How did you and your group respond to working to a project brief and specification?
- How did the gallery visit impact on your exhibition?
- Do you feel proud of the artwork produced for your exhibition? Why?
- If you could revisit this unit, what changes would you make to the artwork produced? Why?
- Do you feel that the Big Idea makes more sense to you after completing the activities in this unit (visiting the gallery, looking at the work of other artists, producing your own work, creating the exhibition, working alone and with others)?

Geography Introduction

Big Idea

Facing up to or overcoming problems and barriers increases possibilities in our lives.

Explaining the Theme

In this unit, students will learn about the challenges faced by refugees in different parts of the world, and the ways in which these groups of people have overcome problems and barriers to make a positive contribution to society. By considering the issues that create and affect refugees internationally, students will learn about ways in which communities have become engaged in projects that improve their lives by overcoming the problems and barriers that they face.

Geography Learning Goals

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- 4.04 Know about the geography, weather and climate of particular localities
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- 4.06 Know how the features of particular localities influence the nature of human activities within them
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4.21 Be able to explain how places and people are interdependently linked through the movement of goods and people

4.22 Develop an understanding of how localities are affected by natural features and processes

4.23 Develop an understanding of how and why people seek to manage and sustain their environment

Geography Journaling Questions

- On what occasions have you had to face problems or barriers to what you wanted to do or achieve? How did it feel when you faced these problems or barriers?
- What actions did you take (or wish you had taken) to overcome these problems so that you had more possibilities than before?
- What do you understand by the term 'refugee'?
- What do you think are the most severe problems or barriers that refugees need to overcome? Why do you think that these are the most serious?
- In what ways have the people and organisations studied in this unit helped refugees to face up to or overcome problems and barriers, in order to increase possibilities in their lives?
- In what ways have the refugees helped themselves to face up to or overcome problems and barriers to increase possibilities in their lives?

History Introduction

Big Idea

Facing up to or overcoming problems and barriers increases possibilities in our lives.

Explaining the Theme

Many different groups of people throughout history have been faced with problems and barriers that have prevented them from achieving their potential and contributing fully to their society. Facing up to and overcoming these barriers takes time, effort and commitment, but can ultimately increase the range of possibilities in our lives and the lives of others.

History Learning Goals

Students will:

4.02 Know that the study of history is concerned with the past in relation to the present

4.03 Know the history of the periods being studied

4.04 Know about the ideas, beliefs, attitudes and experiences of people in the past

4.07 Be able to enquire into historical questions and their effects on people's lives

 **4.08 Be able to describe how the countries studied have responded to the conflicts, social changes, political changes and economic developments that represent their history**

 **4.09 Be able to describe aspects of the past from a range of sources**

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 **4.11 Be able to describe and make links between the main events, situations and changes both within and across periods**

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 **4.16 Be able to describe how certain aspects of the past have been represented and interpreted in different ways**

4.17 Develop an understanding of how historical sources can be different from and contradict one another and that they reflect their context of time, place and viewpoint

History Journaling Questions

- What challenges do you face in your life now?
- How would meeting the challenges you face increase possibilities in your life?
- What are the barriers that you need to overcome?
- What strategies in overcoming barriers have proved to be successful in the period of history that you have studied?
- Which strategies that you have studied were less successful and why?

ICT & Computing Introduction

Big Idea

Facing up to or overcoming problems and barriers increases possibilities in our lives.

Explaining the Theme

The advent of the computer has brought with it countless changes to the way we live our lives. The explosion of computer-based technology over the past century has served to challenge traditional ways of living, learning and working, helping to overcome a wide range of barriers, from improving communication and access to information through to creating new possibilities in the way we monitor and understand disease.

ICT & Computing Learning Goals

Students will:

4.01 Know that the study of ICT and Computing is concerned with designing and applying technology to gather, use and exchange information

 **4.05 Be able to select and use technology and the internet safely, responsibly, respectfully, creatively and competently, for a range of purposes and audiences**

 **4.06 Be able to manipulate, combine and present different forms of information from different sources in an organised and efficient way**

4.13 Develop an understanding of how the internet, the World Wide Web and Cloud computing function, and how they facilitate communication and creativity

4.14 Know how to produce and edit text, image, audio, and video. Recognise an increasing range of different file types, and how these can be converted for different purposes

4.15 Be able to communicate effectively using a range of digital tools including online environments

4.16 Be able to evaluate digital tools analytically, identifying and using appropriate hardware and software to solve a variety of problems

 **4.18 Be able to gather and interrogate information by framing questions appropriately**

4.21 Develop an understanding of how digital tools can be applied analytically to solve problems by designing, creating and using computer models, e.g. 3D design using computer assisted design software, gaming software and spreadsheets to create simulations

4.24 Be able to design, create, use and evaluate creative digital solutions for authentic purposes, considering the end-user

4.25 Develop an understanding of the user-centered design process and apply this in practice when creating digital content

ICT & Computing Journaling Questions

- What personal barriers have you or people you know overcome by using ICT?
- What new possibilities have developments in ICT created for people with disabilities today, that they did not have 30 years ago?
- How has the World Wide Web been developed so that it is accessible for all users?
- Design for All in ICT is design for human diversity, social inclusion and equality to promote access for all users. Why do you think that this principle is important in helping us to face up to or overcome problems or barriers?
- Are there any dangers in using ICT to overcome barriers that increase the possibilities in human ability?
- Do you know anyone who benefits from the contribution of technology? Reflect on the impact of that technology on the improvements to his/her quality of life and the new possibilities open to him/her. Don't describe what they are; reflect on their impact.

Language Arts Introduction

Big Idea

Facing up to or overcoming problems and barriers increases possibilities in our lives.

Explaining the Theme

Autobiographical and other non-fiction genres of writing can often provide a vivid description of the problems and barriers faced by individuals and groups, how they strove to overcome these and the positive outcome of surmounting the challenge at hand. In this unit, students will explore these ideas using, as a stimulus, an array of non-fiction writing.

Language Arts Learning Goals

Students will:

4.01 Be able to play a variety of roles in group discussions by reading required material and being prepared

 **4.02 Be able to ask and answer questions to obtain clarification and elaboration with relevant evidence**

4.03 Be able to integrate strategies and tools such as multimedia to enhance listening comprehension and add interest

4.04 Be able to use the content, intention and perspective of what is said to them in a variety of situations

 **4.05 Be able to convey information, experiences, arguments and opinions clearly and confidently when speaking to others**

4.06 Be able to use appropriate vocabulary in speech

4.07 Be able to analyse the purpose and motivation of the information presented

 **4.08 Be able to use spoken language that is appropriate to the situation and purpose**

 **4.09 Be able to read and comprehend for different purposes including stories, dramas, poems and literature**

 **4.10 Be able to use a variety of strategies to understand meaning**

 **4.11 Be able to determine the theme of a text and its relationship to plot, setting and characters**

 **4.12 Be able to cite evidence that supports explicit and inferred meaning from the text**

4.13 Be able to distinguish between fact and fiction

4.14 Be able to compare and contrast information from a variety of texts to understand how it affects meaning and style

 **4.15 Be able to read for pleasure and enjoyment**

4.16 Develop an understanding for how meaning is constructed using word choice, tone and timing

 **4.17 Be able to write in a range of different forms appropriate for their purpose and readers**

4.18 Be able to write narratives to communicate real or imagined events using descriptive details and event sequences

4.19 Be able to write arguments to support claims using evidence from texts and research from credible sources

4.20 Be able to write informative or explanatory texts to examine a topic and share ideas in an organised manner



4.21 Be able to use writing to organise thoughts, experiences, emotions and preferences

4.22 Be able to write short reports to answer a question



4.23 Be able to use a range of strategies and tools for planning, drafting and revising their writing

4.24 Be able to write neatly and legibly

4.25 Know the rules for grammatical construction and usage

4.26 Know the rules for spelling, punctuation and capitalisation

4.27 Be able to recognise the devices used by an author to accomplish a purpose

4.28 Be able to recognise different forms, genres and themes

4.29 Be able to explain and describe the main features, ideas, themes, events, information and characters in a text

4.30 Be able to recognise and use figures of speech

4.31 Be able to recognise and use descriptive language

4.32 Be able to recognise and use literal language

4.33 Be able to recognise and use different forms, styles and genres

4.34 Be able to recognise and use different linguistic conventions

4.35 Develop an understanding that language is used differently in different situations

4.36 Develop an understanding that language and the way it is used affects the relationships between people

4.37 Develop an understanding that there are cultural differences between the way language is used by different people and in different situations

4.38 Develop an understanding that the meaning of language can be influenced by the situation, form, unexpressed intentions, physical posture, facial expression and gestures

4.39 Develop an understanding that forms of communication benefit from the application of rules

4.40 Know that everyone has a creative side

4.41 Be able to improvise a play, using the roles, situation and elements of a story

4.42 Be able to perform a scripted play



4.43 Be able to make use of voice, language, posture, movement and facial expression

- 4.44 Be able to make use of scenery, stage properties, costume and make-up
- 4.45 Be able to evaluate their own performance and that of others
- 4.46 Be able to respond to a performance identifying the key elements and devices

Language Arts Journaling Questions

- What personal experiences have helped you understand the nature of challenge?
- What have you learned about your own mindset, in terms of taking on challenges?
- What problems and barriers have you encountered during this unit and how did you work to overcome them?
- What problems and barriers may you experience in the future and what could you do to overcome them?
- What have you learned about the challenges faced by other people? What possibilities were opened up in their lives through overcoming their problems?
- Do you think the non-fiction styles of writing we explored are an effective way to convey the Big Idea? How? Why?
- What have you learned about the techniques that can be used when writing effective non-fiction? And how have you developed your own skills in this area?
- What do you think about the idea of the monomyth? Do you think that all stories really are based on the idea of overcoming obstacles and meeting challenges?
- In what ways, if any, has learning about challenges and the monomyth affected the way that you write stories and autobiographical accounts?
- What have you learned about the challenges of adapting your writing style to suit a specific genre?

Music Introduction

Big Idea

Facing up to or overcoming problems and barriers increases possibilities in our lives.

Explaining the Theme

Music can be a powerful medium for facing up to, expressing and overcoming problems and barriers we face in our lives. In this unit, students will examine three forms of music that originated to express and alleviate problems and barriers: work songs, spirituals and capoeira music. Students will be encouraged to reflect on how the study of music can help us learn about the challenges faced by the people who made it, and how these forms of music helped them to overcome problems and barriers.

Music Learning Goals

Students will:

- 4.01 Know that the study of music is concerned with musical expression and communication
- 4.02 Know the uses of the elements of music
- 4.03 Know about the origins and history of musical styles and instruments
- 4.04 Know the characteristics of representative music genres and styles from a variety of cultures
- 4.05 Know the functions music serves, the roles of musicians and the conditions under which music is typically performed in several cultures
- 4.09 Be able to make links between music and other disciplines taught in school
- 4.10 Be able to create or compose short pieces within specified parameters
-  **4.11 Be able to perform a repertoire of music, alone or with others, paying attention to performance practice, breath control, posture and tone quality**
- 4.12 Be able to make judgments about pieces of music, showing understanding, appreciation, respect and enjoyment as appropriate
- 4.13 Be able to display a range of emotions while playing instruments and singing
- 4.14 Be able to improvise, extend or create music to express emotion, ideas, creativity and imagination
-  **4.15 Be able to perform as part of an ensemble and contribute to the overall experience of the collaboration**
-  **4.16 Be able to consider pieces of music in terms of meaning, mood, structure, place and time**
- 4.17 Understand that the work of musicians is influenced by their environment and experiences

Music Journaling Questions

- How can music help to make a difficult job easier?
- When do you use music to support you through challenges?
- How is music used to express politically controversial or dangerous messages? Give an example.
- How does music aid people in pushing through barriers and increasing possibilities?
- Can you think of a contemporary musician who expresses challenge in his or her work?
- Think of a musical challenge you have faced. How did you overcome it?
- “By breaking down skills into manageable targets, you can overcome even significant musical challenges.” Can you think of an instance where this was true for you? What possibilities opened up for you as a result overcoming this challenge?

Physical Education Introduction

Big Idea

Facing up to or overcoming problems and barriers increases possibilities in our lives.

Explaining the Theme

Gymnastics is a challenging sport; it requires a person to be balanced, strong, coordinated, flexible and agile. It is a sport that involves movement of the body through space; rotating, jumping, balancing, climbing, hanging and swinging. In this unit, students will identify an element of gymnastics that they find especially challenging and develop strategies for overcoming it. By facing up to the problem, learning specific techniques and practicing hard they will increase the possibilities in gymnastics sequence work. Moreover, if students can meet the challenges they set themselves in this context, they should also be able to transfer this way of thinking into other aspects of their life and begin to overcome barriers and increase possibilities there.

Physical Education Learning Goals

Students will:

4.01 Know that the study of physical education is concerned with healthy lifestyle choices and activity which lead to physical, emotional and mental balance

4.04 Know how to avoid and reduce injuries

4.05 Know how to respond to challenges and disappointments with confidence and appropriate emotions during athletic events

 **4.06 Be able to steadily improve performance with control, coordination, precision and consistency in a range of physical skills and techniques whenever possible**

4.11 Be able to identify the features of a good physical performance

4.12 Be able to evaluate their own performance objectively and make a plan of action

 **4.14 Be able to use physical movement as a means of expression, enjoyment, communication and art**

4.16 Develop an understanding of how physical activity affects the body, the mind and emotions

4.18 Develop an understanding of the importance of safety procedures and lifesaving techniques

Physical Education Journaling Questions

- What do you find most challenging in gymnastics?
- What did you do to overcome your barrier in gymnastics?
- What effect did this have?
- What possibilities increased when you overcame your barrier?
- Mental toughness can compensate for lack of skill. Do you agree or disagree with this statement? Explain why.
- Explain one of the psychological techniques learned in Task 3.
- Which psychological technique, learned in Task 3, did you find the most successful?
- “Mental toughness is essential to success.” (Vince Lombardi). Discuss this quote, stating if you agree or disagree and why.
- How will you use these techniques in other areas of your life?

Science Introduction

Big Idea

Facing up to or overcoming problems and barriers increases possibilities in our lives.

Explaining the Theme

Over recent centuries, the application of physics to people's everyday lives has greatly increased the possibilities that are open to us. Humans have found themselves able to travel faster and further and move increasingly large objects and loads over ever greater distances. From the industrial revolution onwards, societies have been able to control their environments to a far greater extent than previous generations - with all the consequences, both positive and negative (e.g. environmental damage), that go with those capabilities.

Science Learning Goals

Students will:

-  **4.02 a) Select a scientific issue to investigate and formulate a research question that recognises a potential relationship between two variables, and generate a hypothesis**
-  **4.02 b) Plan an investigation and make predictions**
-  **4.02 c) Select appropriate apparatus and sampling groups, and identify health and safety issues**
-  **4.02 d) Make systematic and accurate measurements to gather data to test a hypothesis**
-  **4.02 e) Record and present his/her findings accurately using the most appropriate medium, scientific vocabulary and conventions**
-  **4.02 f) Identify patterns in the results and draw conclusions based on the evidence**
-  **4.02 g) Suggest ways in which his/her investigations and working methods could be improved**
- 4.02 h) Relate their own investigations to wider scientific ideas
- 4.48 Know about the major types and sources of energy and how they are used and measured
- 4.49 Know that energy can be stored or transferred, but not created or destroyed
- 4.50 Know about the nature and effect of different types of forces, including balanced and unbalanced forces
- 4.51 Know about the effects of forces on motion and Newton's laws of motion
- 4.62 Be able to define mass, weight, speed, velocity and acceleration and explain differences between them
- 4.63 Be able to calculate average speed using time and distance measurements
- 4.64 Be able to represent and interpret a journey on distance-time graphs
- 4.65 Be able to measure different types of forces
- 4.66 Be able to use diagrams to illustrate the strength and direction of forces and resultant forces in one dimension
- 4.73 Develop an understanding of energy, its sources, uses and manifestations in multiple phenomena
- 4.74 Develop an understanding of the conservation and transfer of energy in a system
- 4.75 Develop an understanding of the relationships between time, distance, velocity and acceleration

4.76 Develop an understanding of the effects of forces on objects and that they can be used to predict stability or instability in systems

Science Journaling Questions

- How is the scientific method helpful in approaching problem-solving? How can this approach help to overcome specific problems and obstacles, in order to create new possibilities in people's lives?
- Consider the ethical implications of transportation availability and use on a global scale. Where do you notice the biggest gaps in access and use? How does poor transportation limit access to other possibilities, such as employment, healthcare, food, and education, for those living in rural areas or countries with lower economic development?
- Give an example of an instance where people have attempted to create positive change by surmounting challenges in their lives, but those changes also led to negative or unintended consequences. Why was this? How could this be avoided? What new problems were created and how could these, in turn, be overcome?
- Describe a time when it seemed as if you were facing an insurmountable problem. How were you able to persevere? What was the outcome of this?
- It's all fun and games until somebody gets hurt. Imagine that you are designing the world's ultimate rollercoaster. Describe the features you would incorporate into your design and explain what limits you would put on those features to prevent fun from becoming dangerous.
- If you were creating a new machine, what purpose and capabilities would the machine have? What problems, barriers or obstacles would it seek to overcome, and how? Predict the positive and negative effects of your creation – ways in which it might create new possibilities in people's lives, and ways in which it might limit others.

Technology Introduction

Big Idea

Facing up to or overcoming problems and barriers increases possibilities in our lives.

Explaining the Theme

In this unit, students will consider the global challenge of providing lighting in places where there is no mains electricity. They will consider their own dependence on mains electricity, identifying the central part it plays in their lives and the range of possibilities that electricity and electric lights have created for science and society.

Technology Learning Goals

Students will:

4.01 Know that technology is concerned with designing and making systems that aid the needs of a society

4.02 Know how the lives of people in different countries are affected by the extent of technological advance

4.03 Know how to combine creativity with skills to predict new ideas and inventions

4.05 Know that the quality of a product depends on how well it is made and how well it meets its intended purpose

 **4.07 Be able to investigate the way in which simple products in everyday use are designed and made and how they work**

 **4.10 Be able to work with a variety of tools and materials confidently and safely to create goods and products**

4.11 Be able to test and evaluate the construction of their own work and improve on it

4.12 Be able to evaluate the effectiveness of simple products in everyday use

4.13 Be able to plan for a healthy and nutritious dish by using the properties, seasonality and characteristics of a broad range of ingredients

4.16 Develop an understanding of developments in design and technology and how technology can impact individuals, society and the environment.

Technology Journaling Questions

- Imagine that the only light available to you was daylight. How would this affect your life? What problems and barriers would you face?
- Imagine what your life would be like if you and your family had to do without mains electricity for 48 hours. What problems and barriers would this create?
- What technologies do you use to overcome challenges in your life?
- How would your life be different if you didn't have access to these technologies?



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