

STEM Learning Package

The impacts we harmonise

5

You don't get harmony when
everyone sings the same note.

Doug Floyd

You can't have unity without diversity.

Richard Twiss

Our ability to reach unity in
diversity will be the beauty and
the test of our civilisation.

Mahatma Gandhi

Diversity creates harmony, and
harmony creates beauty, balance,
bounty and peace in nature and
society, in agriculture and culture,
in science and in politics.

Vandana Shiva

Put light against light - you have nothing. Put dark against dark – you have nothing. It's the contrast of light and dark that each give the other one meaning.

Bob Ross

Learning intention & student outcomes



3 Learning Areas

Students will integrate the learning from HPE, Music and Visual Arts to understand the value of harmony in diversity.

Studying harmony in diversity across these three learning areas allows students to transfer their understandings across context, allowing them to reach a more profound conceptual perception.

HPE: Students examine diversity in various areas of health and human performance. For example, they may look at the wide range of diverse gut bacteria to maintain gastrointestinal and digestive balance in the human body. Another example could be looking at a sport and determining the diverse range of characteristics and skills in different roles and positions. Other examples may be used where diversity works in harmony to achieve a common goal.

Visual arts: Students study the concept of contrast in artworks to highlight the importance of differences. For example, students can explore floral paintings and the different floral varieties, colours, forms and shapes within the artwork and analyse the richness each difference brings to the artwork.

Music: Students are given the opportunity to compose music with a single tone and incrementally are provided with additional tones to compose musical works. Students reflect on the growth of opportunities each different note brought to their creative capacity.

ACARA Learning Areas

Year 8 Music

Achievement standards: Students manipulate the elements of music and stylistic conventions to compose music. They interpret, rehearse and perform songs and instrumental pieces in unison and in parts, demonstrating technical and expressive skills. They use aural skills, music terminology and symbols to recognise, memorise and notate features, such as melodic patterns in the music they perform and compose.

ACARA Learning Areas

Year 8 Health and Physical Education

Achievement standards: Students apply personal and social skills to establish and maintain respectful relationships and promote safety, fair play and inclusivity. They demonstrate skills to make informed decisions, and propose and implement actions that promote their own and others' health, safety and wellbeing. Students demonstrate control and accuracy when performing specialised movement sequences and skills. They apply movement concepts and refine strategies to suit different movement situations. They apply the elements of movement to compose and perform movement sequences.

ACARA Learning Areas

Year 8 Visual Arts

Achievement standards: By the end of Year 8, students identify and analyse how other artists use visual conventions and viewpoints to communicate ideas and apply this knowledge in their art making. They explain how an artwork is displayed to enhance its meaning. They evaluate how they and others are influenced by artworks from different cultures, times and places.

Students plan their art making in response to exploration of techniques and processes used in their own and others' artworks. They demonstrate use of visual conventions, techniques and processes to communicate meaning in their artworks.

Pedagogical/Androgogical/Heutagogical Options

Cross-disciplinary learning package for:

- Explicit teaching
- Opportunities for self-directed learning
- Enquiry-based Learning
- Project- and Problem-based Learning
- STEM-focused learning design
- Design thinking and iterative design, valuing failure as stepping stones

Provides teachers with resources for delivering the learning intentions against cross-disciplinary ACARA achievement standards.

Teachers are encouraged to provide students with self-directed learning opportunities rather than opting to deliver in traditional teacher-guided modes.

General capabilities

- **Ethical Understanding:** Exploring ethical concepts and issues; values, rights and responsibilities
- **Critical and Creative Thinking:** Generating ideas, possibilities and actions; reflecting on thinking processes
- **Information and Communication Technology:** Creating and communicating; intercultural understanding; empathising and interacting with others; recognising and developing respect
- **Personal and Social:** Self awareness and social awareness; self-management and social management

Entrepreneurial skills & dispositions

- Transferability
- Communication
- Collaboration
- Thinking interdependently
- Creativity
- Social intelligence
- Listening with empathy
- Curiosity and inquisitiveness
- Empathy
- Self Actualisation
- Confidence
- Collaboration

Time duration

Day's challenge to full term's study

Mode

Face to face | Online in synchronous & asynchronous learning

- Can be delivered across a collaborative class shared between Music, Visual Arts, and Health and Physical Education teachers
- Can be implemented in each learning area or as an integrated unit

Lesson implementation

Lesson aims:

- Familiarise students with their local industry and its history
- Understand the intended learning and learning objectives
- Help students understand that a problem is a need not yet met and therefore an opportunity to unlock value

Part 1: The lack of harmony in diversity

To help students understand the relevance of their learning topic, it is important to demonstrate the existing problems derived from the lack of ‘harmony in diversity’ within our current society.

Brainstorm ideas with your students about issues that arise due to the lack of harmony. From the following resources about existing global issues, you may choose to base your content on one issue that is contextually more relevant for you and your students. Making this explicit link will increase student engagement and interest.

Part 2: Harmony in music

Students examine the value of different and unique assets within this example of a musical composition (video provided as an optional example).

Once students understand that all individual characteristics that make up the variations of tones are valuable for establishing harmony, they can experiment and practice composing musical compositions while assigned only one note/sound/instrument each. This activity can be undertaken in groups of 3-6. Students use their single sound to compose a unified melody that includes and spotlights all notes/sounds/instruments in their teams. Once each group presents their coordinated solutions, they may attempt creating a whole-class production.

Students should then evaluate how their understanding of harmony in music can be transferred in other aspects of their life. Specifically, how this concept can contribute to solving real-world problems.

Part 3: Harmony in health and movement

- Students examine the value of different and unique assets within roles and positions on a selected type of sport or physical activity. Students research the history of the sport/PE activity selected before using their understanding to coordinate a solution.

Optional: Watch Step Dance. Step dancing uses body movements as an instrument. Usually, step dancing is done with a group of people using different movements while coordinating a musical composition in unison. In Swahili, the meaning of Steppin (Umoja) is Unity.

- Once students understand that all individual characteristics that make up the variations of movements and sounds are valuable for establishing harmony, they can experiment and practice composing body movements and musical compositions.
- Firstly, each student will only assign themselves one single sound movement and find a way to make it work with the rest of their team's sound movement.

- Once students present their unified body/sound composition, they can work collaboratively to create compositions with larger groups (or whole class production).
- Students should then evaluate how their understanding of harmony in movement can be transferred in other aspects of their life. Specifically, how this concept can contribute to solving real-world problems.
- An additional relation may be made to the harmony within each body. Students illustrate the harmony of physical and mental functions.

Part 4: Harmony in visual arts

- Students investigate their own personalities by using colour. They select the two colours that represent them best and for each characteristic listed, they add a drop of the corresponding colour. Once they have mixed their drops of colour, they identify where they sit in the colour spectrum.
- Students then create self-portraits individually using their ‘personality colour’, while also allowing a small portion of either side of their artwork to blend in with the colours of students adjacent to them. The result of their work is an individual artwork and a collaborative one.

Note: Content may be introduced by art teachers related to art conventions, techniques and use of different materials and technologies for creating self-portraits. Students should then evaluate how their individuality can be used to compose.

Personality Colour

Orange

Generous
Playful
Active
Energetic

Red

Passionate
Vibrant
Determined
Confident

Yellow

Reliable
Responsible
Trustworthy
Helpful

Purple

Gentle
Enthusiastic
Positive
Peace keeper

Blue

Honest
Romantic
Idealistic
Friendly

Green

Intellectual
Creative
Inquisitive
Intelligent

Part 5: Presentation

Students are given the task of coordinating the final exhibition. They design the event, invitations and organisation. All students must participate in the creation and coordination of the showcase/exhibition. The event will showcase:

- Students learning evidence throughout the three activities
- The potential impacts of their learning real-life problem-solving
- The relevance of the learning to students and their context

Evidence may include:

Artworks: Written analysis and evaluation of the learning and its relevance

Performance presentations: Coordinated outcomes of the HPE solutions and the explicit communication about the link between the learning and real-world problems

Music performances: Explicit communication about the link between harmony within music and other areas

Evidence of their coordinated and collaborative approach in the creation of the showcase.

Resources



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Additional resources

- The problem with monoculture, mechanisation and standardisation both in agriculture and education
- Top challenges for the future of humanity
- United Nations, Global Issues
- 15 Global Challenges – The Millennium Project
- Global food supply
- Economic growth and social inclusion
- Environment and natural resources

- The future of the global financial system
- Gender parity
- International trade and investment
- Infrastructure and development
- ETPG toolkit

Content descriptors



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Health and Physical Education

Communicating and interacting for health and wellbeing

- Investigate the benefits to individuals and communities of valuing diversity and promoting inclusivity (ACPPS079)
- Investigate the benefits of relationships and examine their impact on their own and others' health and wellbeing (ACPPS074)

Music

- Develop musical ideas, such as mood, by improvising, combining and manipulating the elements of music (ACAMUM093)
- Structure compositions by combining and manipulating the elements of music using notation (ACAMUM095)
- Perform and present a range of music, using techniques and expression appropriate to style (ACAMUM096)

Visual Arts

- Present artwork demonstrating consideration of how the artwork is displayed to enhance the artist's intention to an audience (ACAVAM122)
- Develop ways to enhance their intentions as artists through exploration of how artists use materials, techniques, technologies and processes (ACAVAM119)

Jobs & industry



Associated jobs of the future

The skills, knowledge and experience of undertaking this learning experience can equip students for the following jobs of the future.

Teachers can use this engagement tool to help students understand the relevance of this learning to their future world of work.

Analogue experience guide

Analogue experience guides will help people unplug from digital life and reconnect with the natural world, without digital implants or augmented reality.

Food knowledge communicator

Food knowledge communicators will help people to change their relationship with food, making it healthier and more ethical.

Haptic technology designer

Haptic technology designers will create realistic touch control, touch sensing, and motion tracking to virtual and augmented reality.

Media remixer

Media remixers will combine a variety of media from across time to create blended one-of-a-kind products or experiences.

Multisensory experience designer

Multisensory experience designers will bring together virtual reality, haptic and biofeedback/biometric technologies to create fully immersive games and leisure activities, marketing campaigns, and education/training.

Swarm artist

Swarm artists will use drone swarms to create art, music, or performance-based cultural experiences.

Virtual and augmented reality experience creator

Virtual and augmented reality experience creators will design digital and virtual experiences for healthcare, marketing, or entertainment.

Virtual assistant personality designer

Virtual assistant personality designers will custom-program virtual assistants and tailor them to their client's needs.

Space tourism operator

Space tourism operators will lead real-life tours across the solar system.

Sportsperson of the future

Sportspeople of the future will engage in competitive sports, supported by the latest in technological advances.

Links with industry

The Entrepreneurial Education Teacher Practice guide provides a 5-step tool to help teachers identify and integrating meaningful industry and community interactions into the classroom.

1. Establishing collective networks
2. Outreach selection
3. Contact strategies
4. Exposure to the real world of work
5. Reflection and exchange

Note: Use the ETPG tool '5 Steps to guide any classroom to identify and design a simple reciprocally beneficial interaction with industry and community' (Please see [Additional Resources on page 28](#)).

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