



Action Schools! BC



Instructional Example

Biofeedback to Bust Stress

Subject: Physical and Health Education (PHE) Grade: 7

OVERVIEW

Engaging students in physical activities is one way to enhance students' physical literacy, which will help strengthen students' positive mental well-being. This instructional strategy focuses on engaging students to participate in physical activity in and out of their school day. This lesson uses Biodot Skin Thermometers™ or smartphone apps (e.g., Stress Check) as a hook to engage students in self-awareness and self-monitoring relaxation/stress levels, followed by participating in and promoting a favourite physical activity as one key strategy to promote mental well-being.

BIG IDEAS

- Healthy choices influence students' physical, emotional, and mental well-being.
- Physical literacy and fitness contribute to students' success in and enjoyment of physical activity.

CORE COMPETENCIES

Communication (C)

- Acquire, interpret, and present information (e.g., understanding key terms and concepts related to mental health, physical literacy, biodots, self-tracking apps).
- Explain/recount and reflect on personal experiences (e.g., monitor skin temperature and reflect upon changes with the level of relaxation and stress).

Thinking (CT)

- Get creative ideas that are both novel and have value (e.g., inviting students to think about what students observe through biodots/apps).
- Developing ideas (e.g., promoting physical activity for mental well-being through poster presentations).

Personal and Social (PS)

- Recognize how their decisions and actions (e.g., taking actions to participate in physical activities to manage stress) affect their physical, mental health and well-being in and out of the classroom.

LEARNING STANDARDS

PHE Curricular Competencies (What Students Will Do)

Physical Literacy

- Identify and describe preferred types of physical activity.

Healthy and Active Living

- Identify and apply strategies to pursue personal health-living goals.

Mental Well-Being

- Describe and assess strategies (e.g., create poster presentations) for promoting mental well-being, for self and others.

PHE Content (What Students Will Know)

- Learn how to participate in different types of physical activities, including individual and dual activities, rhythmic activities, and games.
- Signs and symptoms of stress, anxiety, (e.g., use biodots/smart phone apps).

COMPREHENSIVE SCHOOL HEALTH PILLARS

Relationships and Environments:

- Strengthens supportive school community recognizing the importance of the mental well-being of students and importance of physical activity and making healthy choices by building student competence (e.g., how to use biodots or smartphone apps to measure body temperatures; empowering peers to participate in physical activity); positive classroom climate assists students to express their views and interests on health and learning.

Teaching and Learning:

- Student-centred activities build knowledge and skills for students to improve their health and mental well-being (e.g., use of biodots; create posters; participate in preferred physical activities); provide targeted learning support by creating links between learning themes and areas of student interests.

Community Partnerships:

- Accesses resources (e.g., biodots, smartphone apps) that support and promote student and staff mental health well-being; offer school-based resources through school counseling services (e.g., have teachers, staff, and students wear biodots or use smartphone apps for a wellness promotion day) that support and promote student and staff well-being.

School Policies:

- Adopts the use of user friendly practices (e.g., biodots, smartphone apps) to acknowledge the importance of mental well-being and that encourage strategies that promote it for self and others (e.g., physical activity); supports inclusion policies by encouraging student-wide participation in co-curricular and extra-curricular physical activities, which will enhance overall well-being.

CROSS-CURRICULAR CONNECTIONS

Science

- Observe, measure, and record data (qualitative and quantitative) using biodots or smartphone apps with accuracy and precision.

FIRST PEOPLES PRINCIPLES OF LEARNING FOR ALL STUDENTS

- Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).
- Learning involves recognizing the consequences of one's actions.

TIMEFRAME

- 50 minutes (over two consecutive classes)

MATERIALS AND TECHNOLOGY

- Large sticky notes (2 colours)
- Poster boards and markers
- Magazines
- Biodfeedback tools
 - Biodots <http://www.stresstop.com/microsites/freebiodots.com>; <http://www.biodots.net/>
 - Stress Check app by Azumio <https://play.google.com/store/apps/details?id=com.azumio.android.stresscheck&hl=en>
- Biodots - Temperature Check Activity Sheet and Interpretation Chart (Appendix A)

- Physical Activity Poster Rubric Example (Appendix B)

TEACHER TIPS

- Teachers should first review how biodots or smartphone apps work. Keep in mind students' level of understanding about the physical stress response.
- Biodot Skin Thermometers™ is a useful, fun, and easy tool to promote stress management strategies. Biodots are small self-adhesive, temperature sensitive stickers that are placed on the hand to monitor skin temperature by changing colour. Our skin temperature changes due to changes in the amount of blood flowing through the skin.
- Stress Check by Azumio (Android & Apple versions cost \$0 --\$3) is a smartphone app. The app approach requires less lead-time and no on-going cost to replenish supplies. Teachers might download the app on their own smartphone and let students use it for the lesson. In other cases students might download the free app on their own devices and use it on an on-going basis.

STRATEGY

- Give out biodots to students. (If unavailable invite students to use an alternate app)
 - Peel the biodots off the sheet and give one to each student to place on the back of their hand.
 - Ask students to record the initial colour of their biodot on a piece of paper. Tell them that we will be monitoring any colour change (i.e., beginning of class; end of class; throughout school day). State we will be discussing how these work later in the class.
- Explore key definitions.
 - Have students first explore the meaning of mental health through inquiry.
 - Have students brainstorm in small groups of 4 to draft a list of meanings to share back with the class to facilitate a class discussion.
 - Discuss the definition of mental health to students.
 - ✓ Mental health is defined as: *our capacity to feel, think, and act in ways that enhance our ability to enjoy life and deal with the challenges we face*" (BC Mental Health & Substance Use Services, 2013).
 - Have students then explore the meaning of "physical literacy" through inquiry.
 - Have students brainstorm in small groups of 4 to draft a list of meanings to share back with the class to facilitate a class discussion.
 - Discuss the definition of physical literacy to students.
 - ✓ Physical literacy is: *the motivation and ability to understand, communicate, apply, and analyze different forms of movement in a wide variety of physical activities in multiple environments that benefit the healthy development of the whole person* (PHE, 2016).
- Have students share their preferred physical activities.

- Provide the class with coloured sticky notes.
- Ask the class to write down one favourite physical activity that they feel promotes their mental well-being.
- Have students post it on the board, then share and describe their physical activity example linked to mental well-being.
- Ask the class to write down one answer on each sticky note to the question: "How does participating in different physical activities improve the way you think, behave, or feel?"
 - Provide the class with large sticky notes.
 - Have students post and best match their answer (i.e., positive effect) on the board next to a physical activity that has already been posted.
 - Review the positive effects of physical activity on mental well-being with students. For example, physical activity releases different chemicals (i.e. endorphins = the feel good chemicals) that positively affect the brain.
 - Summarize positive effects that regular physical activity can have on our mental well-being:
 - ✓ Improve thinking, learning, and memory
 - ✓ Improve mood
 - ✓ Improve sleep
 - ✓ Raise energy levels
 - ✓ Improve ability to cope with stress
 - ✓ Reduce feelings of anxiety
 - ✓ Reduce depression
 - ✓ Raise self-esteem
 - ✓ Improve self-image
- Facilitate student engagement in biofeedback.
 - Explain to students what biodots are, how to use them, and ways in which these skin thermometers can be used in assessing and managing stress.
 - Have students record the colour of their biodot on the *Temperature Check Template Example and Interpretation Chart* (Appendix A). Students will continue recording biodfeedback throughout the day.
- Facilitate student leadership.
 - Group students in four (4) to create a poster that promotes one physical activity for mental well-being to the class using what they have learned in the lesson and any materials they wish to use (e.g., poster board, markers, magazines).
 - Have each group present their poster to the class highlighting their chosen physical activity and how it promotes mental well-being for themselves and others.

- Post students' posters in the school hallway for other students, staff, and parents to view.
- Have the class vote on their favourite poster.
- Have the group with the most votes lead their physical activity with the class.
- Review and connect the class participation in a physical activity led by a student group to concepts in the initial lesson by re-emphasizing the mental well-being connections. According to BC Mental Health and Substance Use Services (2013), an individual's mental well-being can have a positive effect on a wide range of aspects in our everyday lives such as:
 - Healthier lifestyles
 - Better physical health
 - Improved recovery from illness
 - Higher success in school
 - Better relationships with family and friends
 - Success in our jobs
 - Improved quality of life and overall well-being

ASSESSMENT

- Use Biodots Temperature Check Activity Sheet and Interpretation Chart to help students capture biofeedback throughout school day (see Appendix A).
- Use Physical Activity Poster Rubric to assess students' posters to promote mental wellbeing for self and others through participation in physical activity (see Appendix B).

ADAPTIONS/MODIFICATIONS

- Teachers might want to convert the biodots skin temperature ranges provided in F° to C° to adhere to the metric system.

EXTENSION ACTIVITIES

- Teachers may wish to use other wellness management tools designed to help youth improve their mental health such as BoosterBuddy Mobile App and MindShift Mobile App.
- Teachers may wish to use the tool in conjunction with breathing exercises for relaxation, yoga, tai chi, or other related physical activities.

RESOURCES/REFERENCES

Anxiety BC. *MindShift app*. Retrieved from <https://www.anxietybc.com/resources/mindshift-app>

BC Mental Health and Substance Use Services. (2013). *Mental health promotion*. Retrieved from <http://www.bcmhsus.ca/mental-health-promotion>

Biodot®. 2016. *Biodot® skin thermometers*. Retrieved from: <http://www.biodots.net/about/>

Physical Health and Education Canada. (2016). *Physical literacy*. Retrieved from: <http://www.phecanada.ca/programs/physical-literacy/what-physical-literacy>

Stress Check App by Azumio. Retrieved from <https://play.google.com/store/apps/details?id=com.azumio.android.stresscheck&hl=en>

Vancouver Island Health Authority. (2013). *BoosterBuddy mobile app*. Retrieved from http://www.viha.ca/cyf_mental_health/boosterbuddy

APPENDIX A: BIODOTS TEMPERATURE CHECK ACTIVITY SHEET AND INTERPRETATION CHART

Black = Very Tense

Amber or Brown = Tense

Yellow = Unsettled

Green = Involved

Turquoise = Relaxing

Blue = Calm

Violet = Very relaxing

Time	Stress-Level (colour)	Activity	Emotional Feelings	Physical Feelings
1				
2				
3				
4				
5				
6				
7				

APPENDIX B: PHYSICAL ACTIVITY POSTER RUBRIC EXAMPLE

Category	4	3	2	1
Coverage of the Topic	Details on the poster capture important information about a physical activity and increase students awareness of its importance to mental well-being.	Details on the poster includes important information about physical activity, but needs more links to mental well-being.	Details on the poster relate to a physical activity, but are too general or incomplete. The audience needs more information to appreciate the importance to mental well-being	Details on the poster have little or nothing to do with the promotion of a physical activity and the importance to mental well-being
Use of Graphics	All graphics clearly promote a physical activity.	The chosen graphics are generally related to the promotion of a physical activity	Chosen graphics are somewhat related to the promotion of a physical activity, yet more relevant graphics could be used.	Graphics do not relate to the promotion of a physical activity.
Organization and Design	Information is well-organized and well-designed with clear titles, subheadings, and statements.	Information is organized with titles, subheadings, and statements.	Information is somewhat organized, but titles and subheadings are missing or statements do not help others understand.	The information appears to be disorganized and not well-thought-out.
Layout, Design, and Creativity	All information on the poster is clearly organized and can be easily viewed by others; very creative	Most of the information on the poster clearly organized and the content easily viewed by others; creative	Some of information on the poster is clearly organized and the content is easily viewed by others; some creativity	Much of the information on the poster is unclear, disorganized, or too small; little or no creativity
Mechanics	The font-size is appropriate and consistent. No grammatical, spelling, and/ or punctuation errors.	The font-size is appropriate. Minor grammatical, spelling, and/ or punctuation errors.	The font-size is appropriate. Some grammatical, spelling, and/or punctuation errors.	The font-size is hard to read and not consistent. Grammatical, spelling, and/or punctuation errors are noticeable throughout the poster.

The modified rubric is adapted from [readwritethink.org](http://www.readwritethink.org)

http://www.readwritethink.org/files/resources/lesson_images/lesson1076/rubric.pdf