

Daily Physical Activity



By: Carli, Denis, Hansol, Jacqueline, & Shannon

Research Question

How can movement and physical activity in inner city schools and across various subjects influence social, emotional and behavioural outcomes?

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Introduction / Links To Case 6



“I wonder how I can utilize DPA (daily physical activity) and Co-operative games in the gym to support my students’ concentration in class.”

The daily physical activity (DPA) policy was implemented to engage students from K-12 in physical activities, to promote a healthier living and to help students develop healthy habits of being physically active. However, this policy is now being phased out in BC and we have discussed some of the reasons for this in our research package. For our presentation, we shifted the focus of our research from DPA to meaningful movement in the classroom and looked at ways to incorporate movements into different subjects that are applicable to any and all types of schools and classrooms.

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Daily Physical Activity

Please note: this policy is being phased out as the new Grade 10-12 curriculum is implemented over the 2018/19 and 2019/20 school years. For the 2018/19 school year, only Grade 11 and 12 students are required to document and report physical activity as part of Graduation Transitions.

Date came into force or revised

Revised July 2018

Status

Revised

Related Policies

- [Food and Beverage Sales in B.C. Schools Policy](#)

Contact Information

If you have any questions relating to the physical activity policy, please contact the Ministry at:

Email:

curriculum@gov.bc.ca

Barriers to implementation of DPA (in BC)

1. **Skills**
 - DPA-specific training
2. **Knowledge**
 - Lack of knowledge about DPA requirement
3. **Environmental context and resources**
 - Poor
 - Lack of time due to curricular demands
 - Weather and space constraints
4. **Reinforcement**
 - Lack of monitoring
5. **Social influences**
 - School-level priorities
6. **Optimism**
 - Mixed feelings about the success of policy

Meaningful Movement

What is it and what can it look like?



Meaningful Movement

... is movement that has context or a connection to one's life. As Lori from the Meaningful Movement Project (n.d.) states, it's movement that calls to an individual as needed. In the classroom setting, meaningful movement has connection to what students are learning, is related to the interests of the students in the class, or is an engaging way to get them up and moving.

Meaningful Movement cont...



<https://www.youtube.com/watch?v=iBZI6BdAoSk>

TAKE10 (<https://take10.net/>)

- “TAKE10 is a classroom-based physical activity program, developed by the ILSI Research Foundation with the assistance of health professionals and education experts, combining academic instruction with 10 minutes of physical activity breaks without sacrificing time dedicated to academic learning”

- Implemented in: The USA, Brazil, Chile, Japan, China, Indonesia, and the UK
- Future Implementation Planned in: Mexico, Colombia, and Guyana
- Canada is not on the list
- TAKE10 aims to improve:
 - On-task behaviour
 - BMI
 - Academic success
 - Healthy habits
- TAKE10 aims to increase:
 - Physical activity
 - Nutrition knowledge

Examples for Meaningful Movement

Jack Hartmann YouTube Channel - <https://www.youtube.com/user/JackHartmann>



Money literacy song



A simple body break movement song

<https://www.cosmickids.com/category/watch/>

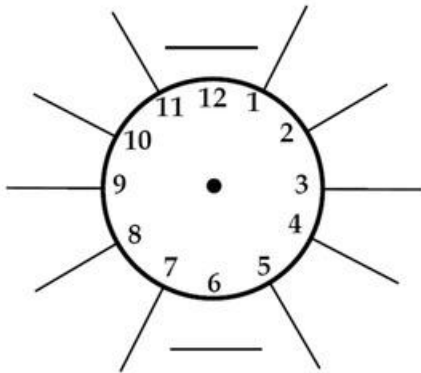
<https://www.gonoodle.com/>

<https://www.youtube.com/user/pattysbukla>

Examples for Meaningful Movement

- Mingling buddy talks (ie: share with someone wearing the same colour)
- Clock buddy discussions

CLOCK BUDDIES
for _____



- Card partner/group discussions/activities
- Songs with actions
- Nature walks
- Dance breaks
- Station activities
- Stretch breaks/mindfulness breathing
- More specific examples later in the research package ...



Physical Activity Patterns (Inner-City Schools)

Physical education and sport programs at an inner city school: exploring possibilities for positive youth development

Nicholas L. Holt ✉, Zoë L. Sehn, John C. Spence, Amanda S. Newton & Geoff D.C. Ball

Pages 97-113 | Received 13 Apr 2010, Accepted 05 Nov 2010, Published online: 26 Jul 2011

- A lack of school-based recreational opportunities for students from low-income inner-city neighbourhoods
- School is an ideal place to promote positive youth development because it is safe, supervised and structured

“Results: Findings showed factors that facilitated or impeded PYD varied across different contexts. In PE, the importance of a specialist PE teacher and establishing clear boundaries during lessons while providing children with perceptions of choice were important. Children enjoyed intramural sports, but there were few attempts to create an appropriate developmental atmosphere during these sessions. In fact, intramural sports were associated with negative student interactions. Coaches of the sport teams used techniques to promote social interactions and respect. Most notable student outcomes associated with PYD related to fostering empathy and social connections.”

(Holt, Sehn, Spence, Newton, & Ball, 2012, p. 97)

Physical Activity Studies and Research - Physiological Health

(Burke, R. M., Meyer, A., Kay, C., Allensworth, D., & Gazmararian, J. A. (2014))

- ▷ Throughout the past 30 years, rising childhood obesity rates in the US and Canada have created a desire to study health and physical activity programs' effects in schools
 - Physical activity is often measured by step count, or with **accelerometry** devices
 - Different types of exercises, and their specific benefits are sometimes neglected (exs: devices won't work in water, cycling doesn't measure steps the same way, devices can't be used during self-defence exercises, weight-training may not always be recorded, etc.)
- ▷ Studies that are approaching the research from a physical health standpoint with a goal of eliminating childhood obesity keep track of results such as cardiovascular health, BMI, aerobic capacity, and knowledge and behaviour related to healthy eating and exercise
 - A focus on student physical health leaves some studies without information on what specific physical activity tasks are correlated with any proposed benefits from said activity



Example of an accelerometer that feeds data to a mobile device (Donaire-Gonzalez, D., et al., 2013)

Physical Activity Studies and Research - **Executive Functions**

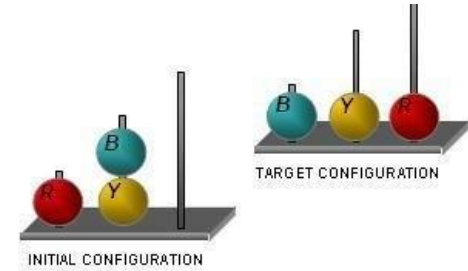
(van der Niet, A. G., Smith, J., Scherder, E. J., Oosterlaan, J., Hartman, E., & Visscher, C., 2015)

- ▷ Recent studies are attempting to find a link between physical activity and **executive functions**.
 - “Executive functions develop as a child's brain matures, and play an important role in the cognitive, behavioral, and social-emotional development of children.” (van der Niet et al., 2015, p. 673)
 - Researchers have suggested that more studies focusing on the effects that comprehensive school-based physical activity programs have on academic improvements as well as social and behavioural outcomes will increase the receptiveness of schools to implementing future programs (Hyde, E. T., Gazmararian, J. A., Barrett-Williams, S. L., & Kay, C. M. 2020)
- ▷ Professor of neuroscience Adele Diamond at UBC distinguishes some executive functions as higher order executive functions that require the use of multiple executive function skills. According to her, planning falls into this category (Diamond, A., 2013).
 - This has led to a current hypothesis by van der Niet and others (2015) that “the relationship between physical activity and executive functioning is most notable in skills that require higher order executive functions” (p. 676), such as planning.

Physical Activity Studies and Research - Executive Functions Continued...

(van der Niet, A. G., Smith, J., Scherder, E. J., Oosterlaan, J., Hartman, E., & Visscher, C., 2015)

Core Executive Function	Testing Method	Observations
<p>Planning skills - planning is considered by Diamond (2013) to be a higher order executive function, requiring the use of multiple executive functions simultaneously</p>	<p>Tower of London Test: move the balls one at a time from one peg to another, you cannot move a ball if it is underneath another; reach the target configuration in the minimal amount of moves.</p>	<p>Higher total volume of physical activity, and more time in a moderate to vigorous movement state correlates to higher scores in the Tower of London test, measured in number of correct configurations completed, time needed prior to the first move, and time from making the first move to the last.</p>
<p>Working Memory - “holding information in mind and mentally working with it (e.g., relating one thing to another, using information to solve a problem)” (Diamond, A., 2013, p. 137)</p>	<p>Visual Memory Span Test: an examiner points to colored squares in sequences, the student must repeat the sequences from 2 up to 7 sequences per attempt</p>	<p>No significant correlation was found between physical activity and working memory. However, working memory is involved in other, higher order executive functions.</p>






Copyright E.J. Fimbel, C. Côté, 2001, 2009

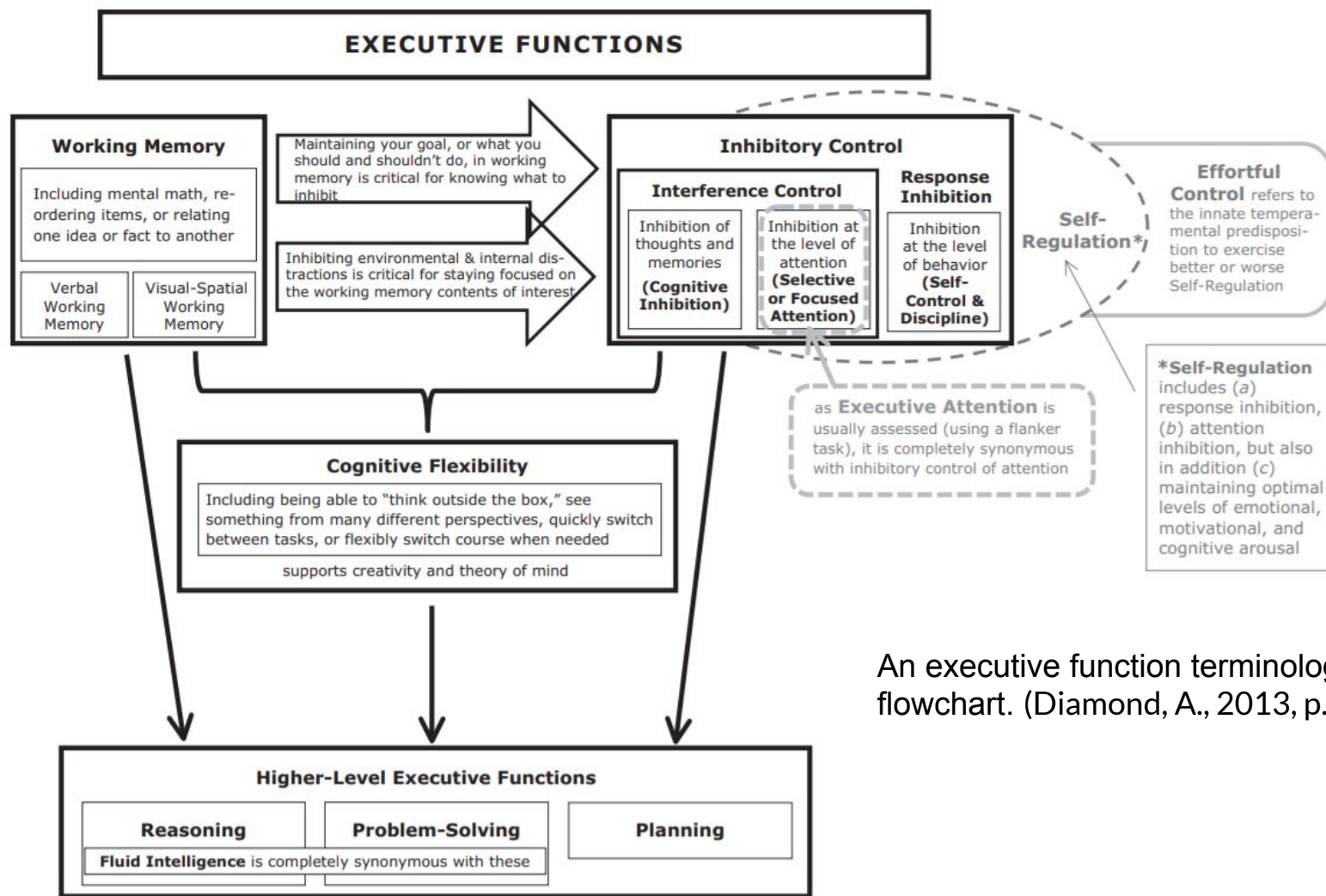
An easy Tower of London configuration

Physical Activity Studies and Research - Executive Functions Continued...

(van der Niet, A. G., Smith, J., Scherder, E. J., Oosterlaan, J., Hartman, E., & Visscher, C., 2015)

Core Executive Function	Testing Method	Observations
<p>Inhibition - “controlling one’s attention, behavior, thoughts, and/or emotions to override a strong internal predisposition or external lure” (Diamond, A., 2014, p. 136)</p>	<p>Stroop Test: using three sets of cards, read the words written in black ink (red, blue, green...), then say the colors of rectangles (   ...), then say the color of the ink (red, blue, green,...)</p>	<p>Students with higher amounts of sedentary behaviour performed more poorly on this test, suggesting their sedentary activities are not stimulating inhibition skills</p>
<p>Cognitive Flexibility - “changing perspectives or approaches to a problem, flexibly adjusting to new demands, rules, or priorities (as in switching between tasks)” (Diamond, A., 2013, p. 137)</p>	<p>Trailmaking Test: draw lines to connect circles in numerical, alphabetical, then alternating orders</p>	<p>No significant correlation was found between physical activity and cognitive flexibility. However, cognitive flexibility is involved in other, higher order executive functions.</p>

- ▷ When children are sedentary, their task determines to what degree executive functions, particularly inhibition, are being challenged. Future studies would gain support if they are able to halt the decrease in inhibition skills caused by greater sedentary behaviour.
 - Children in inner city public school regions, like the ones in BC, do not typically engage in activities that stimulate inhibition skills during most of their sedentary time, rather, it may involve watching a screen, playing unchallenging games, or reading. Tasks that display incremental rises in difficulty are shown to improve inhibition skills.



An executive function terminology flowchart. (Diamond, A., 2013, p. 152)

Benefits to Developing Executive Functions

Aspects of life	The ways in which EFs are relevant to that aspect of life	References
Mental health	EFs are impaired in many mental disorders, including:	
	- Addictions	Baler & Volkow 2006
	- Attention deficit hyperactivity (ADHD)	Diamond 2005, Lui & Tannock 2007
	- Conduct disorder	Fairchild et al. 2009
	- Depression	Taylor-Tavares et al. 2007
	- Obsessive compulsive disorder (OCD)	Penadés et al. 2007
	- Schizophrenia	Barch 2005
Physical health	Poorer EFs are associated with obesity, overeating, substance abuse, and poor treatment adherence	Crescioni et al. 2011, Miller et al. 2011, Riggs et al. 2010
Quality of life	People with better EFs enjoy a better quality of life	Brown & Landgraf 2010, Davis et al. 2010
School readiness	EFs are more important for school readiness than are IQ or entry-level reading or math	Blair & Razza 2007, Morrison et al. 2010
School success	EFs predict both math and reading competence throughout the school years	Borella et al. 2010, Duncan et al. 2007, Gathercole et al. 2004
Job success	Poor EFs lead to poor productivity and difficulty finding and keeping a job	Bailey 2007
Marital harmony	A partner with poor EFs can be more difficult to get along with, less dependable, and/or more likely to act on impulse	Eakin et al. 2004
Public safety	Poor EFs lead to social problems (including crime, reckless behavior, violence, and emotional outbursts)	Broidy et al. 2003, Denson et al. 2011



Adele Diamond, PhD, FRSC,
Retrieved from:
en.wikipedia.org/wiki/Adele_Diamond

“EFs are important to just about every aspect of life” (Diamond, A., 2013, p. 137)

Turning some ideas on their head | Adele Diamond |

TEDxWestVancouverED (2014, Retrieved from <https://www.youtube.com/watch?v=StASHLru28s>)



- ▷ Adele Diamond discusses the importance of executive functions, and predicts that certain activities can directly and indirectly train to improve executive functions, which in turn will benefit many aspects of a person's life.
- ▷ She describes this prediction in more detail from **11:28** in the video. From there until the end, she addresses activities such as dance groups, circuses, martial arts organizations, and orchestras, all for children. She advocates for research to show how activities that support social emotional, and physical well being are among those that most successfully improve executive functions.

Physical Activity Studies and Research - Behaviour

(Carlson, J. A., Engelberg, J. K., Cain, K. L., Conway, T. L., Mignano, A. M., Bonilla, E. A., Geremia, C., & Sallis, J. F., 2015)

- ▷ Teacher-led physical activity intervention programs such as “CATCH (CATCH (Coordinated Approach to Child Health), 2015, Kelder et al., 2005), Instant Recess (Instant Recess, 2015, Whitt-Glover et al., 2011), and TAKE 10! (Stewart et al., 2004, TAKE 10!, 2015)” (Carlson et al., 2015, p. 67), are programs that have evidence that shows an increase in physical activity at elementary schools. Implementing them in a study that focuses on student behaviour strengthens the research because the area is understudied (Mahar, M. T., Murphy, S. K., Rowe, D. A., Golden, J., Shields, T., & Raedeke, T. D., 2006).
 - When implemented in low-income schools, teachers were encouraged, or trained to have at least one 10-minute break for physical activity per day, and were surveyed on student behaviour.
 - Surprisingly, teachers being trained to have breaks was associated with 3.52 minutes *less moderate to vigorous physical activity (MVPA)* per day compared to students from teachers being encouraged to have breaks.
- ▷ “Classrooms with more MVPA had reportedly fewer students who were off task or inattentive [...] and showed a trend [...] for fewer problem behaviors [...]. Teachers who reported implementing activity breaks in the past week reported fewer students who lacked effort or gave up easily.” (Carlson et al., 2015, p. 69)*

*Adjustment equation figures omitted


Practical Applications

Incorporating movements in teaching

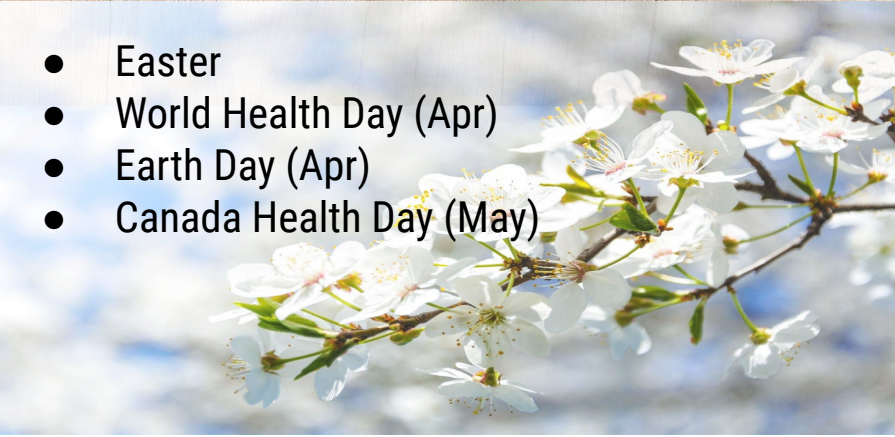



Link Physical Activities to Seasonal Topics & Events

: Make a meaning of the physical activity

- 
- Terry Fox Day (Sep)
 - AIDS Walk Canada (Sep)
 - International Walk to School Day (first week in Oct)
 - Thanksgiving
 - Halloween

- 
- Remembrance Day (Nov)
 - Christmas and New Year
 - National Non-smoking Week (Jan)
 - Heart Smart Month (Feb)
 - Traffic Safety Awareness Week (first week of Mar)

- 
- Easter
 - World Health Day (Apr)
 - Earth Day (Apr)
 - Canada Health Day (May)

- 
- Bike Month (Jun)
 - Canadian Environment Day (first full week of Jun)

Classroom Physical Activity in Breaks

- Olympic Rock Paper Scissors

Play rock paper scissors with your body

Expression of body for Rock Paper Scissors can be modified



<https://www.chaisplay.com/plays/225-%EC%98%A8%EB%AA%B8%EC%9C%BC%EB%A1%9C-%EA%B0%80%EC%9C%84%EB%B0%94%EC%9C%84%EB%B3%B4>



<https://www.youtube.com/watch?v=fqxcZK8hXYQ>

Classroom Physical Activity in Breaks

- **Trees and Squirrels**

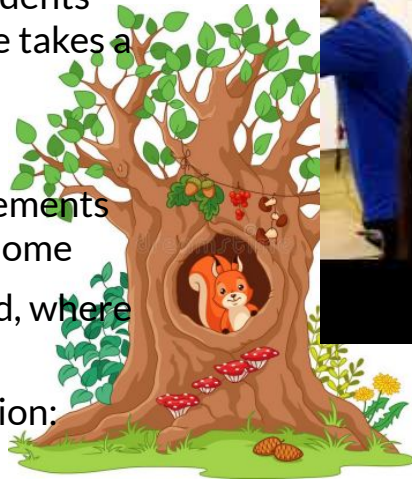
1. Divide students in groups of 3
2. Have 2 students join hands to make a tree
3. Have the other player go inside the tree to represent the squirrel
4. On the teacher's signal, all squirrels must leave their home and find another tree.
5. After several rounds, have students change their roles so everyone takes a turn to play a squirrel

Modifications:

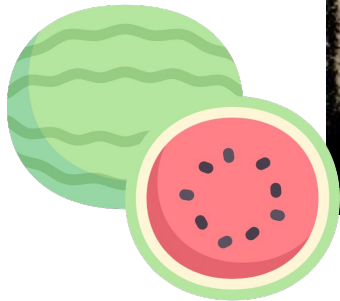
Have students to use different movements when they are searching for a new home

Difficult version: the tree in the wind, where the trees move around the room

Can be adapted into Christmas version: Santas Chimneys



Classroom Physical Activity in Breaks: WATERMELON TAI CHI

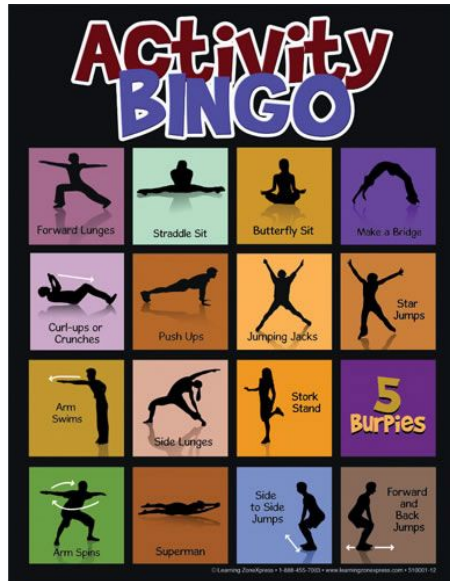


Retrieved from <https://www.youtube.com/watch?v=zjpcg0bwY5o>

Classroom Physical Activity

● Bingo Game

Combine with other subjects such as Social Studies, Science, French etc.



<https://www.kaplanco.com/store/trans/productDetailForm.asp?CatID=12%7C%7C0&PID=51564>

- Have students write answers on Activity Bingo paper.
- To cross out answer, students need to do suggested activity on the Bingo paper.
- Any adaptations/ modifications are possible.

● Scavenger Hunt - searching for words, or objects around the classroom

- Language Arts (diagraph): find 5 words that contain CH
- Math (measurement): find 5 objects that are less than 10 cm

Art Education

5 ways to use movements in Art:

1. **Make a movement routine**
 - Incorporate some simple stretches at the beginning of class
2. **Walk and Draw**
 - Take the students on a walk around the school and draw what they see
3. **Do some pattern dancing**
 - When studying pattern and lines, show students movements corresponding to the different types of lines
 - For example, what does a zigzag line look like? Walk or dance it out.
4. **Reward students with a dance party**
 - After a great day in the art classroom, reward students with some silly dance-along songs
5. **Have a standing desk**
 - Some students have difficulty sitting down
 - Use bed risers to lift up the tables into standing desks



A couple more ideas...

Musical Chairs: Painting to music while moving

Procedure:

1. Use the well-known game of musical chairs
2. When the music is playing, students make a few marks on the paper
3. Encourage them to dance along and draw at the same time
4. When the music stops, ask students to paint something specific wherever they land
5. Create something that reminds them of the music being played

Materials:

- Paint or other art materials
- Paper
- Music



Freeze Figure Drawing



Procedure:

1. Assign each student with a number
2. Play music and have a dance party
3. Say "FREEZE" and students will freeze in their final dance move
4. Then call out either odd or even numbers group
5. The numbers called out will be the artist and walk around to draw the frozen students
6. Figure drawings are quick. Only drawing the outline and shape of the frozen people

Materials:

- Clipboard
- Paper
- Chalks or Pens or markers
- Music

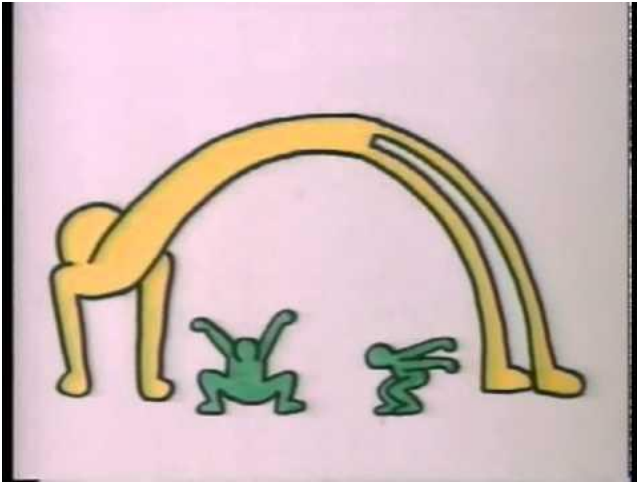
(Hodson, 2016)



3 artists who emphasized movement

Keith Haring - Large body tracing

- Have students create life-size tracings



Retrieved from
<https://www.youtube.com/watch?v=La3XUkG5Ehc&feature=youtu.be>

Edgar Degas - Ballet study

- Get students with dance background to demonstrate some basic ballet feet and arm positions
- Observe and capture these movements like Degas did



Retrieved from
<https://www.metmuseum.org/art/collection/search/460062>

Heather Hansen - Moving symmetry

- Create large symmetrical drawings using whole body movements
- Get students to draw outside on the pavements with chalk



Retrieved from
<http://www.heatherhansen.net/current-exhibition-1>



Retrieved from
<https://www.youtube.com/watch?v=W0GcybrxM5U>

Connections to the BC Curriculum

Big Ideas

The mind and body work together when creating **works of art**.

Creative experiences involve an interplay between exploration, inquiry, and purposeful choice.

Dance, drama, music, and visual arts are each unique languages for creating and communicating.

The **arts** connect our experiences to the experiences of others.

Reasoning and reflecting

- ▶ Observe, listen, describe, inquire, and predict how **artists** (dancers, actors, musicians, and visual artists) use processes, materials, movements, technologies, tools, and techniques

Art Education - Grade 3

Content

Students are expected to know the following:

- ◆ elements in the arts, including but not limited to:
 - **dance:** **body, space, dynamics, time, relationships, form**
 - **drama:** **character, time, place, plot, tension**
 - **music:** **beat/pulse, duration, rhythm, tempo, pitch, timbre, dynamics, form texture**
 - **visual arts:** elements of design: **line, shape, space, texture, colour, form; principles of design: pattern, repetition, rhythm, contrast, emphasis**

Math

5 Ways to Incorporate Math and Movement:

1. Using movement in content assessment

- Students can associate content with specific movements (rounding numbers to 10 or 20, jumping jacks for 10 and hopping on one foot for 20, so the number 18 would be hopping on one foot because you would round to 20)

2. Move from station to station

- Teacher can get students to collect materials from around the room (grab a number card from the table across the room from you)
- Each group move to the next station for the next activity

3. Order and organize

- Have students organize into a number line (Number each student off and get them to order themselves be least to greatest)

4. Represent using actions

- Have students use their bodies to represent an idea or key math word (make your body into this shape or angle. Or draw a square using your nose)

5. Learn through music and dance

- Students learn new information better through songs so incorporate music and actions to go with the song (skip count 5, 10, 15, 20, using the movement and tune of Macarena)

Math & Movement Floor Mats

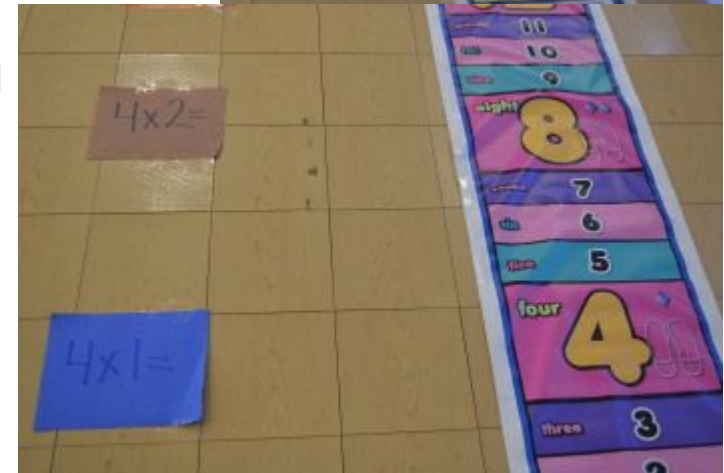
Overhand Throwing (Grade 4)

Math Skill: measuring and converting feet

Materials: measurement mat, one ball or beanbag for every 2 students

Steps:

- Pair up students & give each student a beanbag
- One partner will be the thrower, the other the measurer
- The thrower stands at the end of the measurement mat and throws the beanbag overhand
- The measurer uses the mat to mark and measure, to the closest foot, where the beanbag landed and records the number
- Repeat 4 times and then switch roles
- Record answers after each round



Active Math Movements



Whisper/loud movements: incorporating cross-body movements. (i.e. skip counting)

- Student stands with feet shoulder-width apart
- Student touches left foot with right hand and whispers “1”
- Student touches right foot with left hand and whispers “2”
- Student claps and shouts “3”
- This continues then on “6” they clap and shout and so on
- Pattern continues until teacher desired number (i.e. 30)

Active Math Skip Count: (follow up activity)

- Student jumps in place every time they skip count be 3
- Student jumps once and says “3”
- Student jumps again and says “6”



Sit-Down/Stand-Up Movement

Sit-down/Stand-up Movement: Designed for more quiet time and incorporates stretching.

Measurement expressed by movement:

- Stretch all the way to the sky (How long you are?)
- Stretch your arms all the way out to your sides (How wide you are?)

Shapes/angles expressed by movement:

- Draw a square using your nose
- Use your body to make a right angle



Science - Brain Break



State of matter song

- Science 3 Curriculum
 - Big Idea: All matter is made of particles
- Science 4 Curriculum
 - Big Idea: Matter has mass, takes up space, and can change phase
- Using a video like this is a fun way to get the students up and moving, while also engaging them in a topic that relates to a unit that is in the curriculum
- This could be used as a review at the start of a unit or could be used as a brain break in the middle

Language Arts/Social Studies - Action Stories

1. Tell a story that contains many different types of actions and characters/ history
2. Have students act out the characters and their actions such as:
 - Animals: elephant, gorilla, kangaroo, horse, bird
 - Machines: cars, planes, helicopters, robots
 - Nature: trees, grass, wind, lighteningThemes to use for story lines include:
 - A trip, or travelling to a destination
 - A quest or adventure
3. As a variation, make it as a game: have groups of students to create movements and act out to express certain scenes of the story and have the rest of students to guess

*Can be adapted into other subjects such as French etc. or into a group work

-Have students/group act out some action verbs or idioms etc.

Language Arts/Social Studies - Story Starters

Give each student a piece of paper and choose a **theme** related to a topic covered recently in class



Have them begin writing a **story** (the first few lines)



Have them **crumple up** their paper and **throw it** to the other side of the room. Ask them to **move around** the room, using a different locomotor movement each time, to find a new piece of paper



Have them **pick up** a paper that is close to them and **read** the story starter. Then, ask them to **continue writing** the story



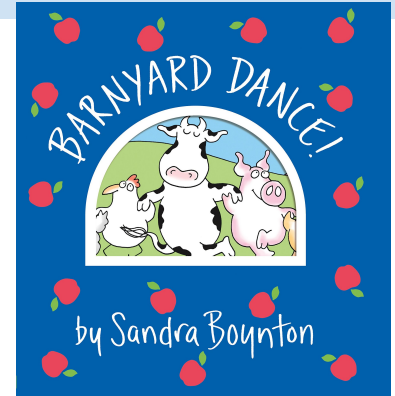
Continue for **several rounds**, then have them **share** their stories in groups



*Can be modified for the other subjects: Math, Science, & Social Studies

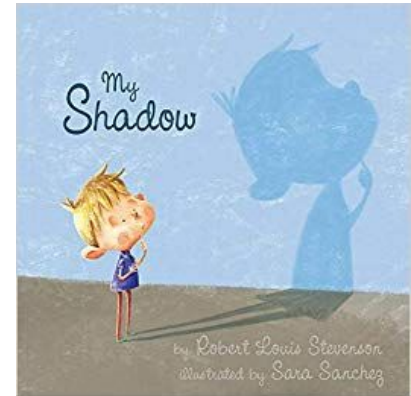
Children's literatures (Language Arts and PE)

Skills	Title and Author	Description	Grade level
Dribbling	Cereal Soccer by Lynn Hefele	Soccer skills of passing, dribbling, shooting. It comes with a lesson plan.	K-4
Volleying	Bugs and Bubbles by Lynn Hefele	Bugs practicing different volleyball skills. Use balloons to practice volleying	1-4
Striking and Batting	Widget's batting lesson by Lynn Hefele	To teach striking skills through cooperative learning. Students are learning how to bat by learning how to coach.	1-4
Dance	Barnyard dance by Boynton	To introduce square dance moves. Read and show pictures. Act it out with students as you read along.	1-3
Creative Movement	My Shadow by Stevenson	Perform shadow movements with light projecting shadow onto a sheet.	K-4
	Bears Snores on by Wilson	Great for acting out the story as you read along.	K-3



Retrieved from

<https://www.amazon.ca/Barnyard-Dance-Sandra-Boynton/dp/1563054426>



Retrieved from

<https://www.amazon.ca/My-Shadow-Robert-Louis-Stevenson/dp/1634501780>

(Rickette, n.d.)

Check Students' Understanding: any subjects

True or False Simon Says



1. Say "Simon says..." then give an activity suggestion, such as:
 - If stretching is a good stress management technique, reach for your toes
 - If water is a healthy drink, skip around your desk
2. If they think the statement is true, they complete the suggested activity. If false, they stand still

Multiple Choice Question

1. Ask students multiple choice questions. Each choice is associated with certain activity
Q. Which of the following is a sense organ?
 - A. Tongue (jump)
 - B. Hair (skip around your desk)
 - C. Bone (reach for your toes)
 - D. Foot (march on the spot)
2. Have students complete the activity that is associated with the answer they choose

Motivate Your Students!

- Monitor the implementation of the DPA to ensure that all students are active
- Use following tools to help students keep track of their own participation


Physical Activity Log


Day + Date	Activity + # of Minutes	Activity + # of Minutes	Activity + # of Minutes	Total # of Minutes
Wednesday 3-29-17	Soccer Practice 60 minutes	Walking 20 minutes	Push Mowing 15 minutes	95 minutes
MONDAY				
TUESDAY				
WEDNESDAY				
THURSDAY				
FRIDAY				
SATURDAY				
SUNDAY				

NAME _____ HOMEROOM TEACHER _____
 WEEK OF _____ PARENT SIGNATURE _____

GOAL 60 MINUTES DAILY

Sense Activities

- Playing Chase
- Dancing
- Flying a kite
- Freeze Tag
- Swimming
- Doing Cartwheels
- Playing Catch
- Sledding
- Riding your scooter
- Climbing trees
- Walking the dog
- Jumping on the trampoline
- Jumping Rope
- Playing hooscooch


- Students record their daily physical activities performed and monitor attitudes toward the activities for the duration of a week
- Students can set a goal during weekly or/and monthly
- For younger students, have them colour a part of a shoe whenever they finish certain physical activity for over certain time. Display it along the hallways to promote physical activity

Appendix 5

My Fitness Shoe Activity Log

For the Week of: _____
 Name: _____

Colour one part of the shoe when you take part in a fitness activity for 30 minutes or more!



My Fitness Activities

1. _____	6. _____
2. _____	7. _____
3. _____	8. _____
4. _____	9. _____
5. _____	10. _____

Conclusion



The shift from DPA to meaningful movement integrated into the BC curriculum provides a way to engage students' learning and interests by getting them up and moving. Educators use techniques such as clock buddies or card partners to get students to move around for discussions, or they use more explicit forms of movement through brain breaks. Research has found that incorporating physical activity into classrooms is beneficial to improve physiological health, help develop executive functions, as well as improve behaviour. Throughout our presentation we showed you that you can integrate meaningful movement into any subject you are teaching to keep students engaged during class and to improve their learning outcomes.



Glossary

Daily Physical Activity (DPA):	Planned and spontaneous physical activity that people do on a daily basis, for example, walking, sports, gardening, running or jogging, household chores, active games and play, and stretching.
Meaningful Movement:	Movement that has context or a connection to one's life. In the classroom setting, meaningful movement has connection to what students are learning, is related to the interests of the students in the class, or is an engaging way to get them up and moving.
Accelerometer:	A health monitor device that measures distance traveled over time; capable of measuring in 3 dimensions, accelerometers are used in research studies to determine how much time students spend in MVPA. If the accelerometer shows 0 distance traveled every 5 seconds for long enough, the person is considered to be in a sedentary state.
Moderate to Vigorous Physical Activity (MVPA):	The state in which a person is moving their body more than a specified distance over a specified period of time. In school studies, this usually means between 2-3 meters or more per 5 seconds for a variably recordable amount of time.
Executive Functions (EFs):	"A subset of cognitive operations used to effortfully guide behavior towards a goal. Executive functions develop as a child's brain matures, and play an important role in the cognitive, behavioral, and social-emotional development of children" (van der Niet et al., p. 673).

Annotated Bibliography

Burke, R. M., Meyer, A., Kay, C., Allensworth, D., & Gazmararian, J. A. (2014). A holistic school-based intervention for improving health-related knowledge, body composition, and fitness in elementary school students: an evaluation of the HealthMPowers program. *International Journal of Behavioral Nutrition and Physical Activity*, 11(1). doi: 10.1186/1479-5868-11-78

This study attempts to analyze a physical activity program called HealthMPowers. The program was founded in 1999 in Georgia, USA to combat the rising childhood obesity problem faced by many parts of the US and Canada. The findings of this study show positive changes in student behaviour as a result of implementing a holistic health program. Anecdotal evidence within the article suggests that DPA could help manage inner city classrooms.

Carlson, J. A., Engelberg, J. K., Cain, K. L., Conway, T. L., Mignano, A. M., Bonilla, E. A., Geremia, C., & Sallis, J. F. (2015). Implementing classroom physical activity breaks: Associations with student physical activity and classroom behavior. *Preventive Medicine* 81(2015), 67-72. doi:10.1016/j.ypmed.2015.08.006

Using accelerometers, this study measured MVPA in low-income schools with teacher-led intervention programs shown to increase PA at elementary schools. Teachers were surveyed on student behaviour. The findings showed factors that seem to help or hinder a teacher's ability to include PA breaks in their classes, and survey reports found that students with increased MVPA time showed improvements in behaviour. Because this study goes beyond physical health, its credibility is strengthened, however, there is question to the validity of the teacher reporting when considering bias or willingness to appear compliant to the study's efforts, possibly weakening the study's credibility at this time.

Annotated Bibliography

Diamond, A. (2013). Executive Functions. *Annual Review of Psychology*, 64(1), 135–168. doi: 10.1146/annurev-psych-113011-143750

Professor Adele Diamond of neuroscience at UBC has made executive functions (EFs) her area of expertise. In this article, she defines EFs as an overall concept, and describes various core and higher order EFs. Her research has been used by recent studies to correlate physical activity to improvement in EFs, something that Diamond predicted. This resource serves as a way to become acquainted with EFs and how physical activity may both directly and indirectly serve to improve EFs.

Donaire-Gonzalez, D., Nazelle, A. D., Seto, E., Mendez, M., Nieuwenhuijsen, M. J., & Jerrett, M. (2013). Comparison of Physical Activity Measures Using Mobile Phone-Based CalFit and Actigraph. *Journal of Medical Internet Research*, 15(6). doi: 10.2196/jmir.2470

This article tested the devices used in research studies that measures MVPA. The goal of the article was to assess the validity of the health monitors when used in clinical or research studies. In years following this publication, accelerometers continued to be used by researchers at the recommendation of scholarly reviews such as this.

Holt, N. L., Sehn, Z. L., Spence, J. C., Newton, A. S., & Ball, G. D. (2012). Physical education and sport programs at an inner city school: exploring possibilities for positive youth development. *Physical Education & Sport Pedagogy*, 17(1), 97–113. doi: 10.1080/17408989.2010.548062

This article was written to outline the findings of a case study that looked at teachers and students views of schools PE (Physical Education), team sports, and intramural sports. Holt, Sehn, Spence, Newton, and Ball (2012) were also interested to see if the perception was that these activities impeded Positive Youth Development (PYD) or not.

Annotated Bibliography

Hyde, E. T., Gazmararian, J. A., Barrett-Williams, S. L., & Kay, C. M. (2020). Health Empowers You: Impact of a School-Based Physical Activity Program in Elementary School Students, Georgia, 2015-2016. *Journal of School Health, 90*(1), 32–38. doi: 10.1111/josh.12847

This study examines a comprehensive school-based physical activity program (CSPAP) in Georgia, USA called Health Empowers You. The program was implemented by the non-profit organization, HealthMPowers. It measured daily step count within PE class, outside of PE class, outside of school, PE time with a designated PE teacher, and overall MVPA. It found that schools that implemented CSPAPs had overall higher metrics in all areas. This article claims that studies attempting to find correlations between PA and social emotional, academic, and behavioural improvements would increase receptiveness to new CSPAPs. This study was published on January 1st, 2020, which makes it exceptionally current.

Mahar, M. T., Murphy, S. K., Rowe, D. A., Golden, J., Shields, T., & Raedeke, T. D. (2006). Effects of a Classroom-Based Physical Activity Program on Physical Activity and on On-Task Behavior in Elementary School Children. *Medicine & Science in Sports & Exercise, 38*(Supplement). doi: 10.1249/00005768-200605001-01239

A research study that implemented teacher-led PA programs to be done in classrooms. *Energizers* activities were named as a program that was used. The findings show evidence that these types of programs increase overall PA in schools, and because of research like this, the programs have been used to study PA's effect on children's brains.

Annotated Bibliography

van der Niet, A. G., Smith, J., Scherder, E. J., Oosterlaan, J., Hartman, E., & Visscher, C. (2015). Associations between daily physical activity and executive functioning in primary school-aged children. *Journal of Science and Medicine in Sport*, 18(6), 673-677.

This study stimulated children's physical activity and assessed how it impacted their cognitive and executive functions. Findings show that children's sedentary time should be limited, and their daily physical activity (DPA) should be increased due to a correlation between children with higher amounts of sedentary behaviour and lower Stroop test scores, as well as higher Tower of London scores in children with more MVPA. This study shows that DPA can improve inhibition and planning EFs, which has spurred more interest in researching DPA's effect on EFs.

Weatherson, K. A., Mckay, R., Gainforth, H. L., & Jung, M. E. (2017). Barriers and facilitators to the implementation of a school-based physical activity policy in Canada: application of the theoretical domains framework. *BMC Public Health*, 17(1). doi: 10.1186/s12889-017-4846-y

The research by Weatherson et al. (2017) studied the barriers to implementation of school-based daily physical activity in British Columbia. The authors also compared factors that enhanced teacher's implementation of daily physical activity and factors that facilitated the implementation. There were six factors were identified as barriers. They were skills, knowledge, environmental context and resources, reinforcement, social influence and optimism.. This research provided an in-depth examination on the impacts of school-based daily physical activity on teachers and the challenges faced by them. The author highlighted the importance of identifying these barriers and the effects of it on implementation fidelity. This research could contribute to our case study by providing evidences on the challenges experienced by teachers and facilitated us to do further research on how to overcome these barriers.

References

Daily Physical Activity: A Handbook for Grade 1-9 Schools. (2006). Alberta Education. Retrieved from <https://education.alberta.ca/media/160222/handbook.pdf>

This handbook provides useful information, ideas and inspiration for developing a successful DPA plan for elementary school teachers. It contains sample activities not only for small space areas such as classroom but also for gym or open space areas and outdoors.

Dehner, M. (2019). How to Get Moving in the Art Classroom. Retrieved from <https://theartofeducation.edu/2019/02/18/how-to-get-moving-in-the-art-classroom/>.

This blog post showed 5 ideas to incorporate movements into Art class and 3 artists that could inspire students to do Art and be active at the same time.

Hodson, L. (2016) Action Art Making Strategies: Visual art, Music, and Movement. *Institute for Arts Integration and Steam*. Retrieved from <https://educationcloset.com/2016/10/14/action-art-making-strategies-visual-art-music-movement/>

A blog post by Hodson to demonstrate a few strategies for connecting Art, music and movement in the classroom. These strategies are creative and useful practical applications.

Lindt, S. F., Miller, S. C., Conyers, M., Midwestern State University, & Featuring Kappan. (2019, February 8). Movement and learning in elementary school . Retrieved from <https://kappanonline.org/lindt-miller-movement-learning-elementary-school-physical-activity/>.

This article highlights the 5 strategies for integrating movement into the classroom specifically into the Math curriculum.

References

Math and Movement. (n.d.). A Kinesthetic Approach to Teaching. Retrieved from <https://mathandmovement.com/about/>.

This website shows a kinesthetic, multi-sensory approach to teaching math and literacy. It provides workshops and practices that can be used to integrate into your classrooms when teaching math.

Rickette, M. (n.d.) Picture books to use during physical education. Retrieved from <https://www.exeter.k12.pa.us › Domain › Easyreaderbooklistsortedbytopic>

This spreadsheet was created by Rickette to show books appropriate to use for physical education. The spreadsheet was divided into different sections based on skills and types of activity. Each book had a description and the targeted grade levels.

THE MEANINGFUL MOVEMENT PROJECT. (n.d.). Retrieved January 14, 2020, from <http://www.meaningfulmovementproject.com/>.

This is a website that discusses a change in thinking regarding exercise and meaningful movement.

Wade, M. (2016). Math and Movement: Practical Ways to Incorporate Math Into Physical Education. *Strategies*, 29(1), 10–15. doi: 10.1080/08924562.2015.1111788

This article provides practical ways to integrate Math and Physical Education. It explains what Active Math Movements is and how you can adapt the techniques depending on grade level and abilities.