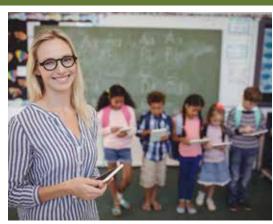


Strategies for Classroom Physical Activity in Schools

November 2018









Centers for Disease Control and Prevention National Center for Chronic Disease Prevention and Health Promotion

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Introduction

Less than one-third of children and adolescents in the United States are meeting the recommendation from the <u>2008 Physical Activity Guidelines for Americans</u> to get 60 minutes or more of physical activity each day. ¹⁻³ Schools can help students meet this national recommendation because close to 60 million children and adolescents attend school. ⁴ Schools have also shown that they are capable of helping students get up to 20 to 60 minutes of physical activity during the school day. ⁵⁻⁸ This finding underscores that schools are the most strategic and practical place for students to learn about and practice being physically active.

The <u>Whole School</u>, <u>Whole Community</u>, <u>Whole Child</u> model can help schools strategically identify and promote policies, practices, and programs that increase physical education and physical activity. Within the context of this model, schools can develop, implement, and evaluate a <u>Comprehensive School Physical Activity Program</u>. This program involves coordination across multiple components, including: 10-12

- Physical education as the foundation.
- Physical activity during the school day (recess and classroom physical activity).
- Physical activity before and after school.
- Family and community engagement.
- Staff involvement.

This coordinated effort can help all students meet the national recommendation for physical activity and help ensure that all students gain the knowledge, skills, and confidence they need to make regular physical activity a lifelong habit.

In addition to physical education and recess, classroom physical activity provides another opportunity during the school day to promote student physical activity, and it offers its own unique benefits. ^{10–13} Making physical activity part of classroom time: ^{14–20}

- Increases motivation and enjoyment of learning;
- Decreases behavioral problems; and
- Improves concentration, on-task behaviors, and test scores.

Classroom physical activity also helps students be more physically active. 16,18,19,21 Regular physical activity improves strength and endurance; helps build healthy bones and muscles; helps control weight; improves mental health by reducing anxiety, stress, and depression; and increases self-esteem.²

This document, Strategies for Classroom Physical Activity in Schools, describes strategies for promoting and planning classroom physical activity. It also provides a list of practical resources to help school staff implement the strategies identified.

This document uses the term classroom physical activity.
Other terms used to describe physical activity in the classroom or some aspect of it include, but are not limited to:

- Movement integration,
- Classroom physical activity breaks,
- Active learning,
- Active classrooms,
- Energizers, and
- Brain boosters.

No matter what term is used, the strategies in this document can help schools and school districts increase physical activity and reduce sedentary behavior in the classroom, which can help improve academic achievement.

Intended Audiences

Primary audiences for this document include:

- Teachers and other classroom staff,
- School administrators,
- Teacher education programs, and
- State and school district leaders who provide technical assistance and professional development on classroom physical activity.



Secondary audiences include school health coordinators, school health advisory councils, out of school time providers, parent-teacher organizations, parents, students, and anyone else interested in promoting and implementing classroom physical activity in schools. Each of these groups plays an important part in building support for these strategies and helping to put them into action, although their specific roles and responsibilities differ.

Application of Strategies

For this document, "classroom" is defined as any place where students in kindergarten through 12th grade can learn or gain experience. The strategies in this document can be applied in any space where teachers might want to engage students in physical activity and learning—such as classrooms, hallways, multipurpose rooms, auditoriums, and outdoor areas. However, these strategies will primarily be discussed in the context of classrooms. These strategies can also be used in other contexts, such as before-school and after-school extended day programs.



Development of This Document

The definitions, guidance, and strategies in this document are based on the following:

- An environmental scan of classroom physical activity in schools.
- A series of virtual conversations and follow-up communications with local, state, and national experts in classroom physical activity.

The environmental scan was conducted by the Centers for Disease Control and Prevention (CDC) in the spring of 2017. This scan included a review of published peer-reviewed articles, guidelines, and reports from government agencies and nongovernmental organizations related to the association between classroom physical activity and social, academic, and physical activity level outcomes.

CDC also conducted an updated literature review of peer-reviewed articles through January 2018. An Internet search was conducted for key resources, such as guidance documents, tool kits, guides, manuals, and program descriptions. The following criteria were applied to narrow the results from the literature and Internet searches: must be related to classroom physical activity; must pertain to schoolaged children (kindergarten through 12th grade); and must address the school setting or be applicable in a school setting.

Virtual conversations were conducted using an online platform in the fall and winter of 2017 by CDC and Springboard to Active Schools, which is an initiative of the National Network of Public Health Institutes and Health Resources in Action. Over 40 physical activity experts participated, including academic researchers, representatives from national nongovernmental organizations and state education and health departments, and district- and school-level educators and administrators. The virtual conversations were followed by group discussions and written correspondence, in which participants gave feedback on drafts of the strategies and shared information about evidence-based and implementation practices.

A limited number of studies have evaluated the effect of classroom physical activity on student physical activity levels and academic achievement, including academic performance, educational outcomes, and cognitive skills and attitudes. Therefore, many of the strategies recommended in this document are based on practitioners' experience.

Strategies were included only if experts agreed with the following:

- A logical connection existed between the strategy and the use of classroom physical activity.
- The strategy was consistent with national recommendations and standards of practice and was feasible for most schools to use.
- The strategy was highly unlikely to be harmful to students.

Definition of Classroom Physical Activity

Classroom physical activity is an important part of a Comprehensive School Physical Activity Program.¹⁰ Classroom physical activity gives students opportunities for physical activity during the school day in addition to physical education and recess. Encouraging students to be physically active during classroom learning can increase the amount of time they are active and limit the amount of time they are sedentary.^{11,22}

Classroom physical activity is defined as any physical activity done in the classroom. Classroom physical activity can take place at any time and occur in one or several brief periods of time during the school day. Classroom physical activity should be offered in addition to physical education and recess and at all school levels (elementary, middle, and high school).

The two primary approaches for classroom physical activity are:

- Physical activity integrated into planned academic instruction.
- Physical activity outside of planned academic instruction.

Another possible approach is the accumulation of *incidental physical activity*, such as moving to different workstations or classrooms throughout or between class periods. Incidental physical activity is encouraged and can be thought of as an entry point for teachers to begin integrating physical activity into their classrooms. It is not included as a part of the definition of classroom physical activity used in this document because of the limited evidence for this approach.



Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. Examples include walking, dancing, jumping, and yoga.²

Benefits of Classroom Physical Activity

Classroom physical activity benefits students by:

- Improving their concentration and ability to stay on-task in the classroom. 15,17-19,23-25
- Reducing disruptive behavior, such as fidgeting, in the classroom. 14,15,19,21
- Improving their motivation and engagement in the learning process. 11,18,26
- Helping to improve their academic performance (higher grades and test scores). 16,20,27
- Increasing their amount of daily physical activity. 18,21,23,24,28,29

Classroom physical activity can keep girls and boys equally active and has a positive effect on students of all grade levels. 10-12,22,29 Regular physical activity promotes lifelong health and well-being and prevents several health conditions, such as high blood pressure, type 2 diabetes, and obesity. In addition, physical activity can improve students' moods and feelings of self-efficacy and reduce symptoms of depression and anxiety. 2 It has been particularly beneficial for students with attention deficit hyperactivity disorder, including an association with reduced use of medications. 30,31

Providing physical activity in the classroom also improves students' cognitive performance.^{32,33} This includes self-regulatory processes such as planning, organization, abstract problem-solving, and working memory. Physical activity can also benefit students who are kinesthetic learners (those who learn through movement and physical experiences).^{34,35} For example, students who are fidgety and not able to sit still for long periods of time may be more engaged and learn better while being physically active.



When used intentionally, classroom physical activity can help students get more minutes of physical activity, which will help them meet the national recommendation of 60 or more minutes of physical activity each day.²⁸

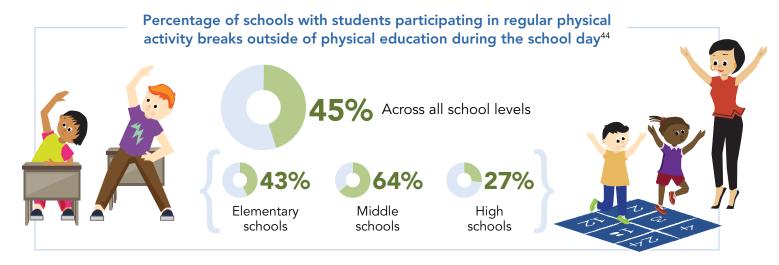
Classroom physical activity also affects student enjoyment of learning, which is an important factor in motivating students to want to learn. 36,37 Allowing students to collaborate and interact with each other in a fun way can create conditions for them to feel safe, comfortable, accepted, and happy. 38 Classrooms where students feel connected to their teachers and peers can provide a foundation for students to be more engaged, enjoy learning more, and perform better. 38,39

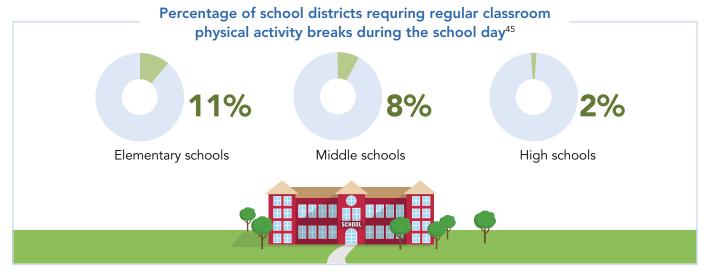
Classroom physical activity can also benefit teachers. When they are physically active themselves, teachers may experience the same health benefits as students. 12,40,41 They can serve as role models for physical activity, encouraging students to be active with them. Teachers can also use classroom physical activity as a behavioral management strategy to help students stay focused and to mitigate off-task behavior like fidgeting, excessive talking, and gazing off. 18,42 This approach may help students perform better academically and be more engaged in learning. Higher levels of engagement can have a positive influence on the classroom and school climate and help meet classroom and school educational goals. 38,39

When school staff model healthy behaviors, students are more likely to engage in healthy behaviors.^{10–12}

Current State of Classroom Physical Activity

Schools, school districts, and states across the nation have different policies and practices that can affect classroom physical activity.^{43–47} For example:





- In 2016, Colorado was the only state that reported requiring classroom physical activity breaks for elementary school students. No states required breaks in middle or high schools.⁴⁶
- Nationwide, elementary schools are less likely to include physical activity in planned academic instruction in schools with a majority Latino population than in schools with a majority white population.⁴⁷
- Nationwide, elementary schools are less likely to include physical activity breaks in schools where a
 majority of students have a low socioeconomic position than in schools where a majority of students
 have a high socioeconomic position.⁴⁷

To increase the use of classroom physical activity, schools could provide professional development to teachers. According to a recent study, only 37% of classes or courses across all school levels had a teacher who received professional development on helping classroom teachers integrate physical activity into their classroom.⁴⁴ The percentage decreased by school level: 42% of elementary school classes, 25% of middle school classes, and 19% of high school classes.⁴⁴

National Guidance on Classroom Physical Activity

CDC, SHAPE America, the National Academy of Medicine (formerly the Institute of Medicine), and other national organizations recommend providing classroom physical activity during the school day to all students in kindergarten through 12th grade. ^{10,12,46} They also recommend that classroom physical activity be provided in addition to physical education and recess to help students achieve the national recommendation of 60 minutes or more of daily physical activity to improve their development and health.

Ideally, classroom physical activity should be in brief periods of 5 minutes or more and done multiple times throughout the day.^{10–12}

Existing guidance from national organizations for classroom physical activity includes the following:^{10–12,46,48}

- Incorporate classroom physical activity into the planning for a Comprehensive School Physical Activity Program.
- Do not replace physical education and recess with classroom physical activity.
- Integrate physical activity into planned academic instruction to reinforce academic concepts.
- Provide physical activity, such as physical activity breaks, outside of planned academic instruction.
- Use classroom physical activity as a way to reinforce skills learned in physical education.
- Ensure that barriers to classroom physical activity, such as lack of equipment or available space, are minimized.
- Do not withhold classroom physical activity from students as a disciplinary approach.
- Provide teachers with ongoing professional development on classroom physical activity.

Considerations for Classroom Physical Activity

Classroom physical activity is implemented at the classroom level and depends on the support that teachers receive from school administrators, as well as their own buy-in and comfort level.⁴⁹ Each classroom is unique, and one prescribed plan for classroom physical activity will not work in all classrooms. Approaches will likely vary depending on factors such as the following:

- Culture and context of the classroom and school.
- Goals of individual classes or courses.
- Preferences and comfort level of individual teachers.
- Enjoyment level and preferences of students.
- Resources, time, and spaces available.

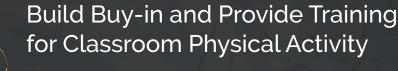
Strategies for Classroom Physical Activity

This document recommends 10 strategies, organized under three categories, that schools can use to improve classroom physical activity (see Figure on page 11). These strategies are grounded in evidence-based approaches to classroom physical activity. Although most of the evidence and expert opinion for these strategies came from elementary schools, many are applicable to middle and high schools and before-school and after-school extended day programs.

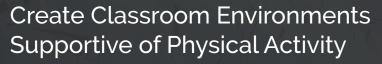
Some strategies are small changes in practices that can be made at the classroom level with relative ease. Others are broader, longer-term goals that may require administrative or budgetary commitment. Individual school districts, schools, and teachers should determine which strategies are most feasible and appropriate according to the needs of the school and classroom, school level, and available resources.



STRATEGIES FOR Classroom Physical Activity in Schools



- 1. Identify who to engage and how to involve them in planning for classroom physical activity.
- 2. Identify what classroom physical activity policies and practices currently exist.
- 3. Provide professional development or in-service training on classroom physical activity.



- 4. Identify approaches to incorporate classroom physical activity.
- 5. Identify opportunities and appropriate times to conduct classroom physical activity.
- 6. Identify materials, technology, and resources to promote classroom physical activity.
- 7. Identify ways to create and use classroom space for classroom physical activity.
- 8. Ensure that classroom physical activity is appropriate and safe for all students by setting and communicating safety and behavioral expectations.



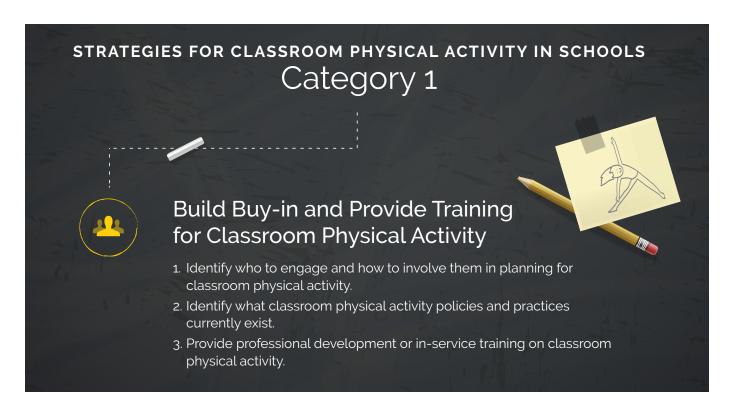
Collect and Share Information About Classroom Physical Activity Experiences

- 9. Collect information on classroom physical activity.
- 10. Share successes, challenges, and lessons learned from classroom physical activity.









1. Identify who to engage and how to involve them in planning for classroom physical activity.

Leveraging existing relationships and creating new ones can increase the use of classroom physical activity. ^{10,14,50} Some school administrators and teachers may be willing to serve as physical activity champions and role models to show the benefits and ease of implementing classroom physical activity and to help build buy-in among other administrators and teachers. Other groups that may be available to support these efforts include school wellness committees or teams that are already working to address classroom physical activity as part of their Comprehensive School Physical Activity Program plan. ^{10,12}

With appropriate support and training, physical education teachers can serve as a resource to promote best practices and techniques for classroom physical activity. ¹⁰ Schools may also have a physical activity champion known as the physical activity leader (often, but not necessarily, the physical education teacher) who can lead the development of a Comprehensive School Physical Activity Program plan that includes classroom physical activity. ¹⁰

Evidence has shown that teacher and student buy-in is essential for the success of classroom physical activity.⁵¹ Challenges that prevent teachers from implementing classroom physical activity include teaching philosophies and priorities that do not include physical activity, space constraints, and limited time for physical activities.

The best way to overcome these challenges is to work with teachers to identify solutions and with school administrators to ensure direct support and encouragement. 49 Students, especially those in upper elementary school grades and in middle and high school, can be asked to serve as student champions and design, select, and lead classroom physical activities. Assessing teacher and student interest might be the first step to identifying existing champions, cultivating new champions, and ultimately implementing classroom physical activity.



Parents and community members can support these efforts by communicating with administrators and teachers about the benefits of classroom physical activity, advocating for and volunteering to help with activities, and sharing specific ideas with teachers.⁵² Creating partnerships with universities and community organizations, like local nonprofits that work with children and adolescents, can expand support and potentially provide resources for classroom physical activity.

2. Identify what classroom physical activity policies and practices currently exist.

Policies that address classroom physical activity may already exist at state, district, and school levels. State policies that require students to engage in a certain amount of physical activity every day are effective at promoting regular activity.⁵³ All districts that participate in school meals programs (such as the National School Lunch Program) are required to have local wellness policies that include physical activity goals and to make these policies publicly available.

School staff can review local school wellness policies and relevant district policies to see if they have requirements for school-based physical activity overall or classroom physical activity specifically. Examples include policies that require regular classroom physical activity or that require schools to report the number of daily minutes of activity.⁵⁴ If such policies exist, schools can consider ways to use these policies to make the case for initiating, strengthening, and expanding classroom physical activity practices.⁵⁵

If no policies exist at state, district, or school levels, schools may be able to identify specific classroom physical activity practices that can be replicated or expanded. They can also use CDC's School Health Index to assess and strengthen their policies and practices related to physical education and physical activity. Assessment results can be used to create an action plan to include physical activity in the school's mission and integrate classroom physical activity into existing or new school policies and practices to help make it part of the school culture.



3. Provide professional development or in-service training on classroom physical activity.

Through professional development opportunities, teachers, instructional coaches, school and district leadership, and other physical activity champions can build their skills and confidence; ensure that activities are conducted in a safe, positive, and inclusive manner; and learn by practicing physical activities.⁵¹ Relevant topics for training include:



- The connection between classroom physical activity and academic achievement.
- Practical ideas for how to promote and plan for classroom physical activity.
- How to connect classroom lessons for other subjects (such as math or science) to physical activity.
- How to use physical activity to manage the classroom (to calm or energize students) and to meet other classroom goals.
- Physical activities that include all students, regardless of ability.

Students taught by teachers who have received training on classroom physical activity have higher levels of physical activity per week than those taught by teachers without this training.⁵³ One way to promote classroom physical activity is to add physical activities to staff meetings and other types of professional development opportunities to show the benefits of these practices and how easily they can be incorporated. Physical education teachers can also be asked to lead professional development for other teachers to give them examples and strategies for classroom physical activity. In addition, schools can identify district-level staff with expertise or recruit help from universities or state agencies of education or health to provide professional development or resources.^{58,59}

Professional development will help make classroom physical activity more sustainable. ^{12,60} It will also give teachers access to support groups or mentors, planning support, resources (handouts, instruction books, videos, and websites), and e-mail reminders about how to implement physical activities. ^{14,51,61,62}



strategies for classroom physical activity in schools Category 2



Create Classroom Environments Supportive of Physical Activity

- 4. Identify approaches to incorporate classroom physical activity.
- 5. Identify opportunities and appropriate times for classroom physical activity.
- 6. Identify materials, technology, and resources to promote classroom physical activity.
- 7. Identify ways to create and use classroom space for classroom physical activity.
- 8. Ensure that classroom physical activity is appropriate and safe for all students by setting and communicating safety and behavioral expectations.

4. Identify approaches to incorporate classroom physical activity.

Classroom physical activity can promote classroom management and increase student engagement in the learning process, while helping students get more minutes of physical activity. 14,18,51 The two primary approaches for classroom physical activity are:

- Physical activity integrated into planned academic instruction. Physical activity during academic instruction can be added to a teacher's lesson planning process to ensure that activities reinforce the desired content and academic standards and help limit the amount of time students are sedentary.^{37,63} Teachers can identify physical activities that fit their teaching style and include them in their lesson plans.^{63,64}
- Physical activity outside of planned academic instruction. Physical activity outside of
 planned academic instruction is not necessarily tied to the lesson being taught. It can be
 spontaneously added to limit sedentary time or when the teacher sees a drop in student
 energy, attentiveness, or retention.²⁶ These physical activities can also be preplanned so
 teachers can quickly and easily incorporate them during class.

Both of these approaches have been shown to increase levels of physical activity throughout the school day and improve different aspects of the learning environment and academic achievement.^{18,19} Other ways to increase physical activity in the classroom include:⁶⁵

- Encouraging physical activity as students move between activities or classrooms.
- Using physical activity as a reward or incentive for appropriate classroom behavior.
- Adding physical activity at the beginning of the school day—for example, schoolwide exercise during morning announcements.
- Identifying ways to turn sedentary activities, such as waiting in line, into time for physical activity.

5. Identify opportunities and appropriate times for classroom physical activity.

The best way to identify opportunities and appropriate times for classroom physical activity is for teachers to intentionally plan for it by adding physical activity into daily lessons and creating prompts.^{61,66} Ideally, classroom physical activities should be:



- Supportive of positive classroom management and integrated throughout class time.
- Simple and easy to organize, requiring little preparation.⁵¹
- Doable anywhere, anytime, and in any clothing worn by teachers and students.⁶⁷

Teachers also can determine appropriate times for classroom physical activity by assessing which approaches work best for them and how their students respond at different times during the school day. Classroom physical activity is often an effective way to help students relax and calm down before a test or after lunch.⁶⁸

6. Identify materials, technology, and resources to promote classroom physical activity.

Physical activity can be added to the classroom with little or no materials or equipment. For activities that do require materials or equipment, these items are usually available in the classroom or from the school's physical education program.⁶⁹ Some schools might be able to add equipment or furniture that promotes movement—such as balance balls, learning mats, standing desks, or bicycle chairs—to their classrooms.^{70,71} If only a few such items are available in each classroom, a rotation schedule will be needed.

Music can also be used to energize and motivate students and as a signal to start and stop activities. Increasingly, digital platforms such as YouTube provide videos that teachers can use for classroom physical activity. In addition, many resources—such as tool kits, guides, manuals, and programs—are available to provide ideas on how to add physical activity to the classroom. Teachers can identify the resources they feel comfortable using and then ask students to choose activities they would enjoy. Once teachers identify the activities they want to use, they will need to make sure they have the necessary materials and technology.



7. Identify ways to create and use classroom space for physical activity.

Every classroom has a unique size, physical structure, and furniture composition, and some creative rearrangement of items in the room may be possible to increase physical activity. Classroom space has been identified as one of the main challenges for teachers who want to add classroom physical activity because of logistics and safety concerns for students. However, a thoughtfully considered physical arrangement can safely enable the inclusion of physical activity. In addition, most physical activities can be done at or next to a student's desk. Teachers can determine the types of activities that are most appropriate for their students and the physical space in their classroom.

Teachers can shift seating arrangements and designate an open space as an "activity area" to make the best use of their classroom for physical activity.

Teachers can also look for ways to use outdoor space to add physical activity—for example, by discussing academic content with a student or small group of students while walking outdoors.⁷³ In addition, some schools have dedicated rooms where students can rotate through active learning stations to help them be more engaged in the learning process. It is important for teachers to plan ahead on how best to use their classroom for a given physical activity, especially when they are first starting to use classroom physical activity or adding a new activity.

8. Ensure that classroom physical activity is appropriate and safe for all students by setting and communicating safety and behavioral expectations.

Setting safety and behavioral expectations for classroom physical activity is essential to creating a safe and positive learning environment for all students. Many schools communicate behavioral expectations for students through the school's code of conduct, and expectations for classroom physical activity could be included in this document. Teachers can also individually set expectations for students. These expectations could include participating in the classroom physical activity to the best of their ability; being respectful of different levels of abilities; being aware of their proximity to other students and objects in the classroom; and helping others if needed. Physical education teachers can help identify activities that are developmentally appropriate and safe to use in a limited space and provide guidance on variations and modifications to make physical activities inclusive of all students. In the classroom physical activities inclusive of all students.





Collect and Share Information About Classroom Physical Activity Experiences 9. Collect information on classroom physical activity. 10. Share successes, challenges, and lessons learned from classroom physical activity.

9. Collect information on classroom physical activity.

Teachers, administrators, and physical activity champions can collect information on classroom physical activity efforts, and teachers can track the types of physical activities they use in their classroom. This information can include preparation time, ease of implementation, whether students enjoyed the activity, and length of the activity. Students also can track their activities in a day planner.

Teachers can assess the effect of physical activities on student behavior, such as whether students are focused, having fun learning, and exhibiting fewer off-task behaviors (like fidgeting, excessive talking, or gazing off). ^{18,42} They also can assess the effect these activities have on students' learning and academic performance (such as their grades and test scores). ⁷⁸ If resources allow, teachers can work with universities or other organizations to use pedometers or other wearable devices to measure student physical activity levels in the classroom.

Teachers can also anecdotally assess the overall learning environment—for example, by observing how the use of physical activity is helping them manage their classroom and how well students are interacting with each other and engaging in the lessons being taught.^{51,61} For students with an individualized education program or a 504 plan, schools can collect information about how classroom physical activity is supporting their progress in meeting identified education goals.

10. Share successes, challenges, and lessons learned from classroom physical activity.

The information collected can be used to identify and share successes, challenges, and lessons learned from classroom physical activity. Dissemination of these findings can guide best practices for both sustainability and improvement. It will also help with future planning and guide professional development needs. Furthermore, celebrating and sharing classroom physical activity successes and their positive effects on students' health and learning may promote and expand buy-in among teachers and administrators. Teachers can use professional learning communities and grade-level team meetings to share their experiences with each other. Successes, challenges, and lessons learned also could be shared during staff meetings, in newsletters, on a school's website, and through e-mail.

Take Action

CDC and Springboard to Active Schools have developed additional resources to help schools put the Strategies for Classroom Physical Activity in Schools into practice, including:

- Integrate Classroom Physical Activity in Schools: A Guide for Putting Strategies into Practice
 provides key questions and activities, along with practical templates that teachers and other
 champions can use to help them adopt, promote, enhance, or sustain the strategies in this
 document.
- Online Platform: Integrate Classroom Physical Activity in Schools is an online platform that
 provides a comprehensive look at the strategies identified in Strategies for Classroom Physical
 Activity in Schools. It includes key questions and activities, templates and tools, stories from the
 field that show how the strategies are being used in different states, and resources aligned with
 each of the recommended strategies.
- Data Brief: Integrate Classroom Physical Activity in Schools defines classroom physical activity, provides a snapshot of current classroom physical activity practices in the United States, and highlights ways to improve classroom physical activity through national guidance and practical strategies and resources.
- Integrate Classroom Physical Activity: Getting Student Active During School is a PowerPoint
 presentation that explains the benefits and importance of classroom physical activity and identifies
 resources available for schools to use to promote and plan classroom physical activity.

Conclusion

The strategies in this document provide a comprehensive approach that school districts, schools, teachers, and other physical activity champions can consider as they promote and implement classroom physical activity for their students. Making classroom physical activity part of every student's day can contribute to their overall health, development, and academic achievement.



References

- 1. National Physical Activity Plan Alliance. The 2018 United States Report Card on Physical Activity for Children and Youth. Columbia, SC: National Physical Activity Plan Alliance; 2018.
- 2. Physical Activity Guidelines Advisory Committee. 2018 Physical Activity Guidelines Advisory Committee Scientific Report. Washington, DC: US Dept of Health and Human Services; 2018.
- 3. US Department of Health and Human Services. 2008 *Physical Activity Guidelines for Americans*. Washington, DC: US Dept of Health and Human Services; 2008.
- 4. US Department of Education. Institute of Education Sciences, National Center for Education Statistics. Fast Facts website. https://nces.ed.gov/fastfacts/display.asp?id=65. Accessed August 31, 2018.
- Carson RL, Castelli DM, Pulling Kuhn AC, et al. Impact of trained champions of comprehensive school physical activity programs on school physical activity offerings, youth physical activity and sedentary behaviors. *Prev Med.* 2014;69:S12–S19.
- 6. Nettlefold L, McKay HA, Warburton DE, McGuire KA, Bredin SS, Naylor PJ. The challenge of low physical activity during the school day: at recess, lunch and in physical education. *Br J Sports Med*. 2011;45(10):813–819.
- 7. Weaver RG, Crimarco A, Brusseau TA, Webster CA, Burns RD, Hannon JC. Accelerometry-derived physical activity of first through third grade children during the segmented school day. *J Sch Health*. 2016;86(10):726–733.
- 8. Yli-Piipari S, Kulmala JS, Jaakkola T, Hakonen H, Fish JC, Tammelin T. Objectively measured school day physical activity among elementary students in the United States and Finland. *J Phys Act Health*. 2016;13(4):440–446.
- 9. ASCD, Centers for Disease Control and Prevention. Whole School, Whole Child, Whole Community: A Collaborative Approach to Learning and Health. Alexandria, VA: ASCD; 2014.
- 10. Centers for Disease Control and Prevention. *Comprehensive School Physical Activity Programs: A Guide for Schools*. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2013.
- 11. Institute of Medicine. Educating the Student Body: Taking Physical Activity and Physical Education to School. Washington, DC: National Academies Press; 2013.
- 12. Centers for Disease Control and Prevention. School health guidelines to promote healthy eating and physical activity. MMWR Morb Mortal Wkly Rep. 2011;60(RR-5):1.
- 13. Webster CA, Russ L, Vazou S, Goh TL, Erwin H. Integrating movement in academic classrooms: understanding, applying and advancing the knowledge base. *Obes Rev.* 2015;16(8):691–701.
- 14. Baker EA, Elliott M, Barnidge E, et al. Implementing and evaluating environmental and policy interventions for promoting physical activity in rural schools. *J Sch Health*. 2017;87(7):538–545.
- 15. Donnelly JE, Lambourne K. Classroom-based physical activity, cognition, and academic achievement. *Prev Med.* 2011;52(suppl 1):S36–S42.
- 16. Erwin H, Fedewa A, Beighle A, Ahn S. A quantitative review of physical activity, health, and learning outcomes associated with classroom-based physical activity interventions. *J Appl Sch Psychol*. 2012;28(1):14–36.
- 17. Mahar MT. Impact of short bouts of physical activity on attention-to-task in elementary school children. *Prev Med.* 2011;52:S60–S64.
- 18. Martin R, Murtagh EM. Effect of active lessons on physical activity, academic, and health outcomes: a systematic review. Res Q Exerc Sport. 2017;88(2):149–168.
- 19. Watson A, Timperio A, Brown H, Best K, Hesketh KD. Effect of classroom-based physical activity interventions on academic and physical activity outcomes: a systematic review and meta-analysis. *Int J Behav Nutr Phys Act.* 2017;14(1):114.
- 20. Rasberry CN, Lee SM, Robin L, et al. The association between school-based physical activity, including physical education, and academic performance: a systematic review of the literature. *Prev Med.* 2011;52(suppl 1):S10–S20.
- 21. Kibbe DL, Hackett J, Hurley M, et al. Ten years of TAKE 10!®: integrating physical activity with academic concepts in elementary school classrooms. *Prev Med.* 2011;52(suppl 1):S43–S50.
- 22. Calvert HG, Mahar MT, Flay B, Turner L. Classroom-based physical activity: minimizing disparities in school-day physical activity among elementary school students. *J Phys Act Health*. 2018;15(3):161–168.

- 23. Barr-Anderson DJ, AuYoung M, Whitt-Glover MC, Glenn BA, Yancey AK. Integration of short bouts of physical activity into organizational routine a systematic review of the literature. *Am J Prev Med.* 2011;40(1):76–93.
- 24. Norris E, Shelton N, Dunsmuir S, Duke-Williams O, Stamatakis E. Physically active lessons as physical activity and educational interventions: a systematic review of methods and results. *Prev Med.* 2015;72:116–125.
- 25. Reed JA, Maslow AL, Long S, Hughey M. Examining the impact of 45 minutes of daily physical education on cognitive ability, fitness performance, and body composition of African American youth. *J Phys Act Health*. 2013;10(2):185–197.
- 26. Kuczala MS, Lengel T. Ready, Set, Go!: The Kinesthetic Classroom 2.0. Thousand Oaks, CA: Corwin; 2018.
- 27. Mullender-Wijnsma MJ, Hartman E, de Greeff JW, Bosker RJ, Doolaard S, Visscher C. Improving academic performance of school-age children by physical activity in the classroom: 1-year program evaluation. *J Sch Health*. 2015;85(6):365–371.
- 28. Drummy C, Murtagh EM, McKee DP, Breslin G, Davison GW, Murphy MH. The effect of a classroom activity break on physical activity levels and adiposity in primary school children. *J Paediatr Child Health*. 2016;52(7):745–749.
- 29. Bassett DR, Fitzhugh EC, Heath GW, et al. Estimated energy expenditures for school-based policies and active living. *Am J Prev Med.* 2013;44(2):108–113.
- 30. Cornelius C, Fedewa AL, Ahn S. The effect of physical activity on children with ADHD: a quantitative review of the literature. *J Appl Sch Psychol.* 2017;33(2):136–170.
- 31. Katz D, Cushman D, Reynolds J, et al. Putting physical activity where it fits in the school day: preliminary results of the ABC (activity bursts in the classroom) for fitness program. *Prev Chronic Dis.* 2010;7(4):A82. http://www.cdc.gov/pcd/issues/2010/jul/09_0176.htm. Accessed September 24, 2018.
- 32. Hillman CH, Pontifex MB, Raine LB, Castelli DM, Hall EE, Kramer AF. The effect of acute treadmill walking on cognitive control and academic achievement in preadolescent children. *Neuroscience*. 2009;159(3):1044–1045.
- 33. Hillman CH, Buck SM, Themanson JR, Pontifex MB, Castelli DM. Aerobic fitness and cognitive development: event-related brain potential and task performance indices of executive control in preadolescent children. *Dev Psychol.* 2009;45(1):114–129.
- 34. Lister D, Ansalone G. Utilizing modality theory to achieve academic success. *Educational Research Quarterly*. 2006;30(2):20–30.
- 35. Lengel T, Kuczala MS, eds. *The Kinesthetic Classroom: Teaching and Learning through Movement*. Thousand Oaks, CA: Corwin; 2010.
- 36. Martin R, Murtagh EM. Teachers' and students' perspectives of participating in the 'Active Classrooms' movement integration programme. *Teach Teach Educ*. 2017;63:218–230.
- 37. Reed J, Weaver-Spencer J. Activiting the Modern Classroom. Greenville, SC: ActivEd; 2017.
- 38. Centers for Disease Control and Prevention. School Connectedness: Strategies for Increasing Protective Factors Among Youth. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2009.
- 39. Thapa A, Cohen J, Guffey S, Higgins-D'Alessandro A. A review of school climate research. *Rev Educ Res.* 2013;83(3):357–385
- 40. Beisser SR, Peters RE, Thacker VM. Balancing passion and priorities: an investigation of health and wellness practices of secondary school principals. *NASSP Bulletin*. 2014;98(3):237–255.
- 41. Michael SL, Merlo C, Basch C, Wentzel K, Wechsler H. Critical connections: health and academics. *J Sch Health*. 2015;85(11):740–758.
- 42. Ma JK, Mare LL, Gurd BJ. Classroom-based high-intensity interval activity improves off-task behaviour in primary school students. *Appl Physio Nutr Metab.* 2014;39(12):1332–1337.
- 43. Centers for Disease Control and Prevention. School Health Profiles 2016: Characteristics of Health Programs Among Secondary Schools. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2017.
- 44. Centers for Disease Control and Prevention. Results from the School Health Policies and Practices Study 2014. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2015.
- 45. Centers for Disease Control and Prevention. Results from the School Health Policies and Practices Study 2016. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2017.

- 46. SHAPE America—Society of Health and Physical Educators. Shape of the Nation: Status of Physical Education in the USA. Reston, VA: SHAPE America—Society of Health and Physical Educators; 2016.
- 47. Turner L, Chaloupka FJ. Reach and implementation of physical activity breaks and active lessons in elementary school classrooms. *Health Educ Behav.* 2017;44(3):370–375.
- 48. National Association of State Boards of Education. Fit, Healthy, and Ready to Learn: A School Health Policy Guide. Washington, DC: National Association of State Boards of Education; 2012.
- 49. Webster AC, Zarrett N, Cook BS, Egan C, Nesbitt D, Weaver R. Movement integration in elementary classrooms: teacher preparations and implications for program planning. *Eval Program Plann*. 2017;61:134–143.
- 50. Webster CA, Beets MW, Weaver RG, Vazou S, Russ L. Rethinking recommendations for implementing Comprehensive School Physical Activity Programs: a partnership model. Quest. 2015;67(2):185–202.
- 51. McMullen J, Kulinna P, Cothran D. Chapter 5 physical activity opportunities during the school day: classroom teachers' perceptions of using activity breaks in the classroom. *J Teach Phys Educ.* 2014;33(4):511–527.
- 52. Centers for Disease Control and Prevention. *Parent Engagement: Strategies for Involving Parents in School Health.* Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2012.
- 53. Ward D. School Policies on Physical Education and Physical Activity. A Research Synthesis. Princeton, NJ: Active Living Research; 2011.
- 54. Public Health Law Center. *Promoting Health in Minnesota Schools: The Active Classroom.* St. Paul, MN: Public Health Law Center; 2013.
- 55. Webster CA, Caputi P, Perreault M, Doan R, Weaver G, Doutis P. Elementary classroom teachers' adoption of physical activity promotion in the context of a statewide policy: an innovation diffusion and socio-ecologic perspective. *J Teach Phys Educ.* 2013;32(4):419–440.
- 56. Centers for Disease Control and Prevention. School Health Index: A Self-Assessment and Planning Guide. Elementary school version. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2017.
- 57. Centers for Disease Control and Prevention. School Health Index: A Self-Assessment and Planning Guide. Middle school/high school version. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2017.
- 58. Webster CA, Monsma E, Erwin H. The role of biographical characteristics in preservice classroom teachers' physical activity promotion attitudes. *J Teach Phys Educ*. 2010;29(4):358–377.
- 59. Michael RD, Webster CA, Egan CA, et al. Viability of university service learning to support movement integration in elementary classrooms: perspectives of teachers, university students, and course instructors. *Teach Teach Educ.* 2018;72:122–132.
- 60. McKenzie TL, Sallis JF, Kolody B, Faucette FN. Long-term effects of a physical education curriculum and staff development program: SPARK. Res Q Exerc Sport. 1997;68(4):280–291.
- 61. Carlson JA, Engelberg JK, Cain KL, et al. Contextual factors related to implementation of classroom physical activity breaks. *Transl Behav Med.* 2017;7(3):581–592.
- 62. Webster CA, Weaver RG, Egan CA, Brain A, Vazou S. Two-year process evaluation of a pilot program to increase elementary children's physical activity during school. *Eval Program Plann*. 2018;67:200–206.
- 63. Watson A, Timperio A, Brown H, Hesketh KD. A primary school active break programme (ACTI-BREAK): study protocol for a pilot cluster randomised controlled trial. *Trials*. 2017;18:433.
- 64. Webster CA, Buchan H, Perreault M, Doan R, Doutis P, Weaver R. An exploratory study of elementary classroom teachers' physical activity promotion from a social learning perspective. *J Teach Phys Educ.* 2015;34(3):474–495.
- 65. Russ LB, Webster CA, Beets MW, et al. Development of the System for Observing Student Movement in Academic Routines and Transitions (SOSMART). *Health Educ Behav.* 2017;44(2):304–315.
- 66. Goh TL, Hannon JC, Webster CA, Podlog L. Classroom teachers' experiences implementing a movement integration program: barriers, facilitators, and continuance. *Teach Educ.* 2017;66:88–95.
- 67. Whitt-Glover MC, Ham SA, Yancey AK. Instant Recess®: a practical tool for increasing physical activity during the school day. *Prog Community Health Partnersh.* 2011;5(3):289–297.
- 68. Action for Healthy Kids. Brain Breaks, Instant Recess and Energizers website. http://www.actionforhealthykids.org/tools-for-schools/1252-brain-breaks-instant-recess-and-energizers. Accessed August 31, 2018.

- 69. Kuczala M. Training in Motion: How to Use Movement to Create Engaging and Effective Learning. Nashville, TN: AMACOM; 2015.
- 70. Fedewa AL, Abel M, Erwin HE. The effects of using stationary bicycle desks in classrooms on adolescents' physical activity. *Journal of Occupational Therapy, Schools & Early Intervention*. 2017;10(1):78–89.
- 71. Minges KE, Chao AM, Irwin ML, et al. Classroom standing desks and sedentary behavior: a systematic review. *Pediatrics*. 2016;137(2):e20153087.
- 72. Alliance for a Healthier Generation. Secondary Classroom Physical Activities website. https://www.healthiergeneration. org/_asset/590hh0/10-1819_SecondaryClassroomPA.pdf. Accessed August 31, 2018.
- 73. Ontario Ministry of Education. *Daily Physical Activity in Schools: Grades 1 to 3.* Toronto, Ontario: Ontario Ministry of Education; 2005.
- 74. Brittin J, Sorensen D, Trowbridge M, et al. Physical activity design guidelines for school architecture. *PLoS One*. 2015;10(7):e0132597.
- 75. Action for Healthy Kids. Including All Children website. http://www.actionforhealthykids.org/what-we-do/programs/game-on/about-game-on/850-children-disabilities. Accessed August 31, 2018.
- 76. Dunn LL, Venturanza JA, Walsh RJ, Nonas CA. An observational evaluation of move-to-improve, a classroom-based physical activity program, New York City schools, 2010. *Prev Chronic Dis.* 2012;9:E146. doi: 10.5888/pcd9.120072.
- 77. Holt E, Bartee T, Heelan K. Evaluation of a policy to integrate physical activity into the school day. *J Phys Act Health*. 2013;10(4):480–487.
- 78. Erwin H, Fedewa A, Ahn S. Student academic performance outcomes of a classroom physical activity intervention: a pilot study. *International Electronic Journal of Elementary Education*. 2012;4(3):473–487.

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