

1 **A Practical Guide for Maintaining High Activity Levels in Physical Education**

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4 The US Department of Health and Human Services (2008) define physical activity
5 (PA) as any bodily movement produced by the contraction of skeletal muscle that increases
6 energy expenditure above a resting level. They recommend children aged 6 and above to
7 accumulate at least 60 minutes of PA of a moderate to vigorous level (MVPA) per day. The
8 Society of Health and Physical Educators (SHAPE) of America (2015) concur, and in their
9 National Physical Education standards put forth recommendations for a purposeful lifetime of
10 healthful PA. The standards identify the need for helping students develop physical fitness
11 and the need to accumulate high levels of participation within physical education (PE).
12 Additionally, stating a well-designed PE program keeps students active for most of the class
13 time. The responsibility of these recommendations is inevitably down to the PE teacher and,
14 with time restrictions within lessons, it has been argued how effective can a PE teachers be
15 with limited class times and sheer number of students (Baghurst, Langley, & Bishop, 2015).
16 Regardless of time allotted to PE, the time within a PE lesson has been researched. Hollis et
17 al. (2016) compiled a meta-analysis of seven studies and found that children spent 44.8% of
18 lesson time in MVPA. This falls short of the recommended 50% of PE class time.

19 Brusseau & Burns (2015) have identified that the most valuable units to increase PA
20 in PE lessons are fitness activities and large space invasion games. Invasion games are
21 particularly popular in many PE classes; however, not all invasion games are created equal.
22 Harrison (2016) researched the amount of touches on the ball in soccer per person, per
23 minute. In an 11 v 11 friendly game there were 0.37 touches on the ball per minute, whereas
24 in a 4 v 4 game (Team A) got 4.3 touches on the ball per minute, and team B got 4.5 touches

25 on the ball per minute. This is a noticeable difference and over the course of a 60 minute
26 lesson can equate to over 200 hundred more touches. Therefore, it can be argued the more
27 touches on the ball the more the student is involved in the lesson, thus the more PA they
28 accumulate.

29 With more PA time to accumulate and a small activity change in mind, we
30 recommend nine specific strategies we have used to improve activity levels within PE classes
31 that have work for us. These strategies consist of small sided games, school warm ups,
32 adapting rules, quick transitions, rewards, resources, teacher challenges, teaching by
33 invitation, and technology. Table 1 provides examples of each of these strategies to illustrate
34 how they can be implemented in PE settings.

35 Transitions, school warm ups and rewards are discussed further as an example on how
36 to be used in a PE class. There are moments within PE to capitalize on class time; one of
37 these can be transitions. When there is a clear routine for students to move from one activity
38 to the next by either a countdown or count up system it reduces loss of class time.
39 Additionally, setting up a student-led warm-up in groups of five at the start of the academic
40 year in which the students rotate who leads can also save time in a lesson and promote
41 activity levels. When the students arrive to the class they can immediately and independently
42 start their warm up, which also frees the PE teacher to prepare for the next activity or even
43 take attendance – it is sometimes an easy visual scan to just see who is missing from a group
44 of five. Furthermore, this gives the teacher an opportunity to reward students by their
45 school’s rewards system, especially if the whole group is out the locker room and started their
46 warm-up in the allotted time.

47 Based on our experience, we recommend slowly introducing each of the strategies, as
48 it can be overwhelming and daunting to promote all at once. However, once the students

49 become accustomed to such time saving activities, they may not notice how much more
50 physically active they are, or shall be too physically exhausted to be aware! By implementing
51 these strategies and others, PE teachers can increase the likelihood that they will meet
52 SHAPE's (2015) recommendation that a well-designed PE program should keep students
53 active for most of their time in class.

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79 *Table 1.*

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81 Recommendations for integrating high levels of activity in PE in various activity units

Strategy	Definition	Practical example
Small sided games	Reduction of traditional team sizes and playing space	<ul style="list-style-type: none">• 3v3 basketball on a half court• Box tennis – playing a game within the service boxes gives students a greater chance of success because it increases the number of shots and movement
School warm up	A recognised warm up known by all students to allow minimal wait time	<ul style="list-style-type: none">• Teacher sorts groups and working space at the beginning of the unit which remains the same. Students, within their groups, choose a pulse raiser and 5 stretches from a resource card provided that changes each week• Teacher has a deck of playing cards with linked instructions, e.g. jack = 10 jumping jacks, 2 = 2 laps of sports hall. Students are sorted into mixed ability groups and take it in turns to choose a card for their group
Adapting rules	Modification of traditional rules to increase opportunities to respond	<ul style="list-style-type: none">• Volleyball – Increase the number of touches per side to increase success as students have more control. E.g. 5 touches per team• Soccer – Opposition team rates how many points a goal from each player would count, e.g. a goal from a stronger player would count for less goals thus making them work harder• Basketball – when a basket is scored, all players run back to their own baseline before they can be involved in the game
Quick transitions	Fast transitions to reduce waiting time	<ul style="list-style-type: none">• Countdown followed by count ups – The teacher would count down from 5, 4, 3, 2, 1 and then count up 1 sit up, 2 sit ups until all students are in place. The number the teacher counts up to is equivalent to the number of small exercises they must do as a whole class, e.g. sit ups• Next activity is prepared while the other students are working on the previous task, e.g. students who are demonstrating know their roles and the working space is set up
Rewards	Positive intrinsic and extrinsic encouragement related to activity levels	<ul style="list-style-type: none">• 3 point system – if students get up to 3 positive points they win a predetermined reward (points can be deducted for poor activity levels/behaviour)• High ball challenge (the ball is punted/thrown in the air for students to catch) – American football – 3 students who have worked particularly well get the opportunity to do a fun activity in front of their peers at the end of the lesson
Resources	Promote student responsibility and autonomy	<ul style="list-style-type: none">• Group task cards to allow students to progress at their own speed. Progressions, teaching cues and tasks which students perform individually or as a group pre-

Teacher challenges	Teacher joining in with games or practices to inspire and motivate the learners	<p>prepared by the teacher</p> <ul style="list-style-type: none"> • In tennis if the teacher blows a whistle students know they must look at the teacher and join in with the activity the teacher is demonstrating for 10 seconds, e.g. fast feet • Teacher challenges – volleyball king of the court – the team that has shown high activity levels have the opportunity to play the teacher
Teaching by invitation	Vocalising the skill progression to allow students the opportunity to choose when to progress	<ul style="list-style-type: none"> • Unlocking in dance – students can only progress onto the next type of cannon (simple, simultaneous, cumulative & loose) when they have mastered the previous from the description. They must demonstrate firstly to the teacher (incorporate competitiveness) • Softball bowling – The three different types of bowling on a resource card (flat and fast, top spin and back spin) students can only progress to the more difficult types when they have mastered the first ones
Technology	Personal gadgets to aid the learning objectives in class	<ul style="list-style-type: none"> • Fitbit or smartphone – setting students a target of the amount of steps they need to achieve by the end of the lesson. (Depending on age of student e.g. 4000 steps) • Health related exercise – the use of video technology to support gym learning e.g. insanity or YouTube clips
