District-Determined Measure Example

Movement Concepts for Grade 3

Content Area and Grade Range: Physical Education, grade 3

DDM Summary: This DDM assesses growth in third grade students’ ability to demonstrate knowledge and application of foundational movement concepts of open space, direction, levels, speed, pathways, and force.

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Pilot Districts: Walpole and Westwood Public School Districts

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Introduction

Description of the Measure
This DDM is a direct measure of growth in third grade students’ understanding and application of foundational movement concepts – speed, direction, pathways, levels, and force – used in moving through open spaces in physical activities. As a measure of knowledge and understanding, students complete a written pre- and post-test of these movement concepts and vocabulary. As a measure of students’ ability to apply their knowledge and understandings, students also complete a pre- and post-test demonstration of these same concepts during a small-sided invasion game.

Rationale
Movement vocabulary and concepts are foundational to elementary physical education programs and help describe how an action or skill is performed. For example, the physical skill or action of kicking a ball does not describe where or how the ball is being kicked.

When one integrates movement vocabulary and concepts in combination with a skill, it is clear how the body moves in relationship to the movement concepts and vocabulary, as illustrated in the following example: The ball is kicked with strong force at a middle level into the soccer net to score a goal. The movement concepts provide a common language and, in physical education, are akin to learning the ABC’s.

Many physical education activities in the upper grades rely on students having command of these foundational knowledge and skills. The purpose of this DDM is to examine growth in students’ understanding of these movement concepts and vocabulary, as well as their ability to apply these during physical activities.

Target Audience
This DDM is designed for use in grade three physical education classes and presumes that teachers are responsible for approximately four classes at this grade level, or approximately 100 students. The results are intended to provide relevant information to educators and their supervisors about the extent to which a sub-sample of their overall student caseload (grade three only) has shown growth in core physical education knowledge and skills.

If teachers have fewer than 75 students at the grade level, you may modify this DDM to collect motor assessment data more frequently, thereby providing more data points from which to interpret fewer students’ growth over time. Alternatively, teachers may use the assessment as presented here, but extend the sample size to include 75-125 students at both grades three and four, combining the results of the two grade levels. This would increase the sample size while holding the core concepts and written and motor assessment design constant.
**Description of the Development Process**

This DDM was developed during October 2014 – June 2015 under a DDM Leadership Grant (FC-217) awarded to The Education Collaborative (TEC) by the Massachusetts Department of Elementary and Secondary Education (ESE). In partnership with the Learning Innovations Program at WestEd (Woburn, MA), the Collaborative convened nine administrators and teacher leaders representing grades K-12 from the districts of Canton, Holliston, Needham, Walpole, and Westwood. Participants worked in smaller teams of three to four physical education educators or administrators to strengthen and apply their assessment literacy toward the development of several direct measures of student growth.

Participants grew their expertise over six sessions by engaging in a guided DDM development process framed by a series of questions, including:

1. *What is most important to measure?*
2. *How shall we measure what’s most important?*
3. *How can we strengthen and refine our measure?*
4. *How can we prepare our measure for broader use?*
5. *What do we want to gain from the pilot?*
6. *What did we learn from the pilot?*

Participants engaged in large group discussion and critique, as well as team collaboration and problem solving. In addition to refinements made during these sessions, each measure was also strengthened based on feedback from an ESE review team. Measures were then piloted during the period of April to June 2015. The group then analyzed data collected during the pilot phase, which informed final revisions, as described in the closing pages of this document.

**Next Steps**

Districts in and beyond The Education Collaborative now have the opportunity to decide if they would like to implement or modify the attached assessment for use as a District Determined Measure for physical education teachers. Because this is a newly developed measure, it is important that districts engage physical education teachers in examining results from the first year of implementation. Districts should also identify, over time, any revisions or refinements that may further strengthen the quality of the assessment, scoring tools, administration protocol, and/or growth parameters to suit the circumstances and realities of each district’s local context.

**Content Alignment**

This measure is aligned to the following [Core Course Objective (CCO)](1):

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1 A CCO is a statement that describes core, essential, or high priority content (knowledge, skills, or abilities), identified by those who designed the assessment, which is drawn, synthesized, or composed from a larger set of curriculum or professional standards.
Students demonstrate knowledge of movement concepts and vocabulary, including:
- Open space, direction (forward, backward, sideways, left and right)
- Levels (low, middle, and high)
- Force (strong, moderate, and light)
- Speed (fast, moderate, and slow)
- Pathways (zigzag, curved, and straight)

Students should also demonstrate a capacity for combining these movement concepts with skills used in a variety of physical activities and game play.

This CCO draws from the Physical Activity and Fitness Strand of the MA Comprehensive Health Curriculum Framework, Standard 2. It states that by the end of grade 5, through the study of motor skill development, students will apply movement concepts including direction, balance, level (high, low), pathway (straight, curve, zigzag), range (expansive, narrow), and force absorption (rigid, with bent knees) to extend versatility and improve physical performance.

This DDM is also aligned with the National Association of Sport and Physical Education Standards 1 and 2. The relevant MA sub-standards are noted in the assessment blueprint provided in the Appendix.

<table>
<thead>
<tr>
<th>Content (Standard)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students demonstrate knowledge of movement vocabulary, including open space, direction (forward, backward, sideways-left and right), levels (low, middle, and high), force (strong and light), time (fast and slow), and pathways. Note: MA Health Standards do not explicitly state that students will know movement vocabulary and concepts before applying them.</td>
<td>25% of the measure</td>
</tr>
<tr>
<td>Students apply and integrate knowledge of movement vocabulary and concepts (above) to physical activities, including invasion games.</td>
<td></td>
</tr>
<tr>
<td><strong>Physical Activity and Fitness, Standard 2.1:</strong> By the end of grade 5, students apply movement concepts, including direction, balance, level (high, low), pathway (straight, curve, zigzag), range (expansive, narrow), and force absorption (rigid, with bent knees) to extend versatility and improve physical performance. (MA Comprehensive Health Curriculum Framework)</td>
<td>75% of the measure</td>
</tr>
<tr>
<td><strong>NASPE Standard 2.E1.3:</strong> Recognizes the concept of open spaces in a movement context.</td>
<td></td>
</tr>
<tr>
<td><strong>NASPE Standard 2.E3.3:</strong> Combines movement concepts (direction, levels, force, time) with skills as directed by the teacher.</td>
<td>100%</td>
</tr>
</tbody>
</table>
Instrument

Assessment Components
This DDM has two parts: a written assessment worth 25% of students' final score, and a motor skills assessment worth 75% of students' final score. The written assessment is an important piece in determining the student’s knowledge. The primary instructional goal, however, is to improve students' performance. Therefore, the motor skills assessment is weighted more heavily.

1. **The written assessment** has 10 multiple-choice questions to measure growth in students’ knowledge of movement concepts and vocabulary, specifically, speed, direction, pathways, levels, and force. It is administered as a pencil and paper assessment or it may be given using an on-line survey form, e.g., Survey Monkey, Google Forms.

2. **The motor skills assessment** examines growth in how students use movement concepts to move to open space in small-sided invasion games. Specifically, the motor assessment focuses on students’ use of speed, direction, pathways, and levels as they move to open space in a 2-on-1 activity. *(Note: the concept of force is not assessed in the motor portion of the assessment because of observers’ potential confusion in differentiating force and speed during actual game play.)* The physical education teacher has the option of administering the motor skill assessment during a variety of invasion game units, e.g., basketball, soccer, and hockey, to gather additional data points during the year. This additional data can provide important information for adjusting instruction and ensuring progress for all students over time.

Administration Protocol

The Administration Protocol addresses how the measure is intended to be implemented to best support a common conversation about student growth and consistent administration and scoring practices across classrooms.

*When is the measure administered?*

This DDM is a pre- and post-test measure. The same movement skills are assessed at the start and end of the school year, regardless of the invasion game in which they are used. The pre-test is administered anytime during the first two weeks of September to establish students’ baseline knowledge and skills. The post-test is administered anytime during the last week of May or first week of June to determine the students’ growth in relation to the identified standards. The written and motor assessments must be administered within two weeks of each other.

If physical education teachers in a district limit their instruction to these core movement concepts to a single five- or six-week unit of instruction, a district may decide to use this DDM as a pre-/post-test *unit* assessment. However, the physical education teachers may expect students’ movement skills to continue to grow throughout the school year, based
on their ongoing instruction. In that instance, this DDM should be administered as a pre-/post-test full year assessment, as described above.

We strongly recommend that, prior to administering the motor skills assessment portion of the DDM, assessors collaborate to establish a clear and consistent understanding of the definition and interpretation of the movement concepts being performed. This is an important calibration exercise to strengthen consistency in scoring across schools.

**How is the measure administered?**

The administration of this assessment is varied for the two segments – the written assessment and the motor assessment.

**Preparation for Administration of the Written Assessment**

To prepare for the administration of the written assessment, physical education teachers will need to do the following:

- Photocopy the written quiz for members of the class.
- Make sure there is a sufficient supply of sharpened pencils with erasers, clipboards, and/or technology (if using an online version of the quiz) for student use.
- If preparing the assessment in an online format, ensure that all questions are designed to require a response before the student can move on to the next item. They must also ensure that every item has an “I do not know” response option.
- Provide students who complete the assessment – and need to wait for the others – with an interesting reading/article, book, or drawing paper.

**Administration of the Written Assessment**

The written assessment has 10 multiple-choice questions. They assess an understanding of basic movement concept terms that are foundational to physical activities, such as game play. It is anticipated that students will need up to 15 minutes to complete the written assessment.

To administer the assessment, the teacher states:

- Today you are going to take a quiz. First, I would like you to read through all of the questions and answer choices quietly to yourselves. After a couple minutes of quiet reading, please raise your hand if you have any questions or if there is anything you don’t understand about the directions or words in the quiz. [The teacher facilitates this question-and-answer period, sharing questions and answers with the entire class so all have access to the same information. The teacher does not, however, provide any assistance that would help the students select the correct responses.]
- Next, you will need a pencil and clipboard (or a laptop and hyperlink to the assessment) to take the assessment.
  - If taking the quiz in the gym, say: Find a place where you can work on your own, away from everyone else, to complete the quiz. Please spread out.
[The teacher directs students to sit farther away from peers if any sit within talking or viewing distance of each other.]

- If taking the quiz in the classroom, say: You will complete the quiz at your desk.
  - When you are finished, double-check your work to see that you have answered every question.
  - Raise your hand when you are finished, and I will collect your assessment. Please sit and read or draw quietly until everyone has finished.

**Preparation for Administration of the Motor Assessment**

To prepare for the administration of the motor assessment, the physical education teacher needs to set up four cones to mark a 30-foot by 30-foot square and determine the size and type of ball for game play (appropriate for the selected invasion game).

Consider the complexity of the movement concepts and the spontaneity of the receiver’s movements. Teachers may provide verbal reminders, as well as visual reminders (posters, demonstrations), to encourage students to recall and use all of the movement concepts during game play. For example, teachers may say, “As you are playing in your 2-on-1 game, use varying speed, directions, levels, and pathways when you move away from the defender to get to open space.” The instructor may also physically demonstrate different pathways and levels. These reminders may be provided during instructional classes and as an integrated part of providing directions for the motor assessment. They may not, however, be provided during the actual assessment.

The developers strongly recommend videotaping students’ performances for this DDM, while adhering to district policy on videotaping students. This allows the teacher to review each student’s game play one or more times before making a determination about the student’s demonstrated level of performance. This also allows two or more physical education teachers to view, score, and discuss the same performance – an important activity in calibrating scoring (see Score Guidance, below).

**Administration of the Motor Assessment**

The motor portion of the assessment provides an opportunity for students to demonstrate their ability to apply movement concepts of direction, speed, pathways, and levels during indoor or outdoor small-sided game play. This portion of the assessment will require approximately 20 minutes.

To administer the small-sided motor assessment, the teacher organizes the class to move through a series of activity stations. The motor assessment station consists of three players: a stationary offensive thrower, a defender who guards the receiver, and an offensive receiver. **The offensive receiver is the focus of this assessment.** In the 30’ by 30’ square, the offensive players (thrower and receiver) try to maintain possession of the ball. The receiver moves away from the defender to open space, and/or moves toward open space in order to receive a pass and/or score a goal.
Each student has two minutes to use as many movement techniques as possible to demonstrate speed, directions, levels, and pathways. Remember, the teacher is assessing the offensive receiver's ability to demonstrate as many movement techniques as possible in a two-minute period. The teacher is not assessing the receiver's ability to catch the ball or use other game-playing skills.

To administer the motor assessment, the teacher states:

- Today you will play 2-on-1. The offensive receiver will try to move away from the defender to the open space to receive a pass and/or score a goal. The defender guards the offensive receiver and not the offensive thrower.
- Each person will have the opportunity to be a thrower, defender, and receiver.
- The offensive thrower will start with the ball. After two minutes, you will change positions.
- I will be watching and assessing how many different ways you move to open space to receive a pass and/or score a goal. Use a variety of speeds, pathways, levels, and directions:
  a) Use fast, medium, and slow speeds
  b) Use straight, curved, and zigzag pathways
  c) Use low, middle, and high levels
  d) Use forward, backwards, and sideways directions

The teacher uses the Observation Scoring Sheet (snapshot below) while observing the offensive receiver. Three students are observed in approximately six minutes – two minutes per student in the offensive receiver position. The teacher notes the receiver's name on the Observation Scoring Sheet. The teacher then records a checkmark each
time the receiver uses any variations listed for the four movement techniques, while moving away from a defender to open space or moving toward open space to score a goal.

### OBSERVATION SCORING SHEET

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Total Points for Written Quiz</th>
<th>SPEED</th>
<th>DIRECTION</th>
<th>PATHWAYS</th>
<th>LEVELS</th>
<th>Total Points for Written and Motor Assessments</th>
<th>Combined Points for Written and Motor Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20 pts total</td>
<td>Slow</td>
<td>Medium</td>
<td>Fast</td>
<td>Forward</td>
<td>Straight</td>
<td>Curved</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>5 pts</td>
<td>5 pts</td>
<td>5 pts</td>
<td>5 pts</td>
<td>5 pts</td>
<td>5 pts</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**How will accommodations be documented?**

Teachers may provide a range of accommodations to students to ensure that they all are able to understand the assessments and have fair opportunity to demonstrate their knowledge and skills. Observers must record all provided accommodations on the second page of the Observation Scoring Sheet, along with accompanying rationale.

**Examples of Acceptable Accommodations for the Written Quiz**

Teachers should provide simple visuals at the assessment site that illustrate each of the following key terms to aid students who are learning English or who have challenges with language or memory:

- Personal space
- Open space
- Direction
- Pathway
- Speed
- Level
- Specific techniques for direction, pathway, speed, and level
  - Slow/Medium/Fast
  - Forward/Backward/Sideways
  - Zigzag/Curved/Straight
  - High/Middle/Low

There are strict guidelines, however, in how these visual aids may be posted in the assessment space to guard against providing inadvertent cues to correct responses for written assessment items. The teacher may place visual aids in any way desired during instructional periods, during the assessment period:

1. None of the specific movement techniques may be labeled as “directions,” “pathways,” “speeds,” or “levels,” as this would provide students with answers to items on the written quiz.
2. Similarly, visuals illustrating the terms direction, pathway, speed, and level may not visually reference any of the specific movement techniques as examples.
3. The movement techniques may not be visually grouped as sets pertaining to the same movement concept, i.e., visuals for high, medium, and low levels may not be grouped together. Many students would be able to use visual reasoning to make
reasonable guesses as to the correct responses on the written assessment. All of the movement technique visuals must therefore be mixed up in a random presentation, as shown in the example below:

Teachers may provide a reader and/or assistive technology for English Language Learners, if necessary, to facilitate the translation and/or break down of questions. This would apply particularly when students are in the first tier of language development, but a teacher may offer these resources whenever there is question about whether reading or writing the language of the assessment may be presenting barriers for English Language Learners.

Teachers may demonstrate the movement skill concept that the question is related to in order to help students’ with learning- or language-based challenges see the skills referenced in the assessment.

**Examples of Acceptable Accommodations for the Motor Assessment**

Teachers should provide visuals at the assessment site to illustrate the terms and concepts listed above. These visual aids provide non-language-based information to support students who may struggle with the language demands of the motor assessment. This is a particularly important support just prior to the assessment when explaining to students the kinds of movement techniques that are being assessed.

Teachers may demonstrate any or all movement skill concepts just prior to the assessment. They may not, however, demonstrate or gesture these concepts *during* the assessment itself.

For students with physical disabilities, teachers should present a video of the skills being assessed. Teachers can then ask students to identify the movement skills being demonstrated, rather than ask them to demonstrate the skills in game play.

All accommodations must be specific to the requirements stated in a student’s Individualized Education Plan (IEP) and or the learning challenge.
**How are deviations to protocols addressed?**
If a student misses a pre-/post-test administration of the written assessment, the teacher should ask the student to sit aside during the next class to complete the assessment, and then rejoin the class in the activity at hand. If a student misses a pre- or post-test administration of the motor assessment, the teacher should organize the next class session to recreate the 2-on-1 activity, and ask the student to play the offensive receiver role, while two other student volunteers play in the other two roles. This may take three to six minutes to complete for up to three absentee students. Use the same “make-up” assessment approach for any third grade student who enters the class after the pre-test administration has occurred.

**Scoring Guide**

**Who Should Score the Assessment?**
The written assessment may be scored by anyone, under the direction of the physical education teacher, because it is a multiple-choice quiz with absolute answers. Questions have only one correct response, indicated in bold on the Written Assessment Answer Key.

The motor assessment, whether it’s live or video recorded, should be administered and evaluated by the physical education teacher. This person has the knowledge and expertise to interpret students’ application of movement concepts during game play.

**How Should Scorers Prepare for Scoring?**
It is recommended that physical education teachers collaborate with role-alike colleagues in the district to calibrate their scoring. Calibration strengthens the likelihood that observations and scoring will be conducted in a consistent and reliable manner over time and across classes and schools. A sample calibration protocol can be found at the Rhode Island Department of Education website: http://www.ride.ri.gov/Portals/0/Uploads/Documents/Teachers-and-Administrators-Excellent-Educators/Educator-Evaluation/Online-Modules/Calibration_Protocol_for_Scoring_Student_Work.pdf.

This protocol can be modified for use with this DDM in a couple of ways. First, a calibration exercise can be completed by participants scoring 1-3 videotaped samples of students’ motor performance (assuming teachers have adhered to all district policies about videotaping students). Alternatively, teachers can conduct joint observations where two teachers observe the same students at the same time, discuss their scoring afterward, and resolve scoring discrepancies by clarifying and coming to agreement about what the scoring criteria mean in relation to students’ observed performances. Teachers will need to prepare blank versions of the Observation Scoring Sheet for each participant to use during this calibration exercise.
What is the Scoring Process for a Single Test Administration (pre- or post-test)?

The scoring process for one administration of this assessment involves combining the results of the written assessment with the results of the motor assessment for each student, as indicated on the Observation Scoring Sheet.

Students may earn a total of 20 points on the written assessment (2 points per question). They may earn up to 60 points on the motor assessment – 5 points per demonstrated variation, with three possible types of variations for each of four movement techniques. The points available for the written assessment represent 25% of the total possible assessment score, while the number of points available for the motor portion of the assessment represents 75% of the total possible score.

Teachers should first record each student’s score from their written assessment in the appropriate cell of the greyed column on the Observation Scoring Sheet. When looking across each student’s row of the Observation Scoring Sheet, the teacher then awards five points for each demonstrated variation listed, with three variations possible for each of the four movement techniques.

For example, if there are checkmarks in the “fast” column under the Speed heading, as well as checkmarks in the “zigzag” column under the Pathways heading, ten points should be awarded: five points for demonstrating one variation of speed, and five points for demonstrating one variation of pathway. Note: students receive five points per variation demonstrated, not five points for each of the checkmarks shown.

The final score for a student’s pre- or post-assessment is the combined total of the written assessment score and the motor performance score. For example, a student may earn eight points on the written pre-test and demonstrated movement concepts of fast and moderate speeds, forward and backward directions, curved pathways, and middle level on the pre-test motor assessment. This would amount to an additional 5 points per movement variation, or 30 points. When combined with the written assessment score, the student’s total combined score would be 38 points, from a total possible 80 points on the pre-test. The same process is used to calculate the final score on the post-test. The final combined score is recorded at the end of each row on the Observation Scoring Sheet.

How Should Student Gain Scores Be Calculated?

To calculate a student’s gain score for the year, and assuming some degree of progress, the teacher subtracts the combined pre-test score (September) from the combined post-test score (June). For example, a student may earn a combined total of 38 points in September – 10 points on the written assessment and 28 points on the motor skill assessment – and then earn 68 points in June – 16 points on the written assessment and 52 points on the motor assessment. The total gain during the year would be 68 points minus 38 points, representing a gain of 30 points.
Example: Gain Score Calculation for One Student

<table>
<thead>
<tr>
<th></th>
<th>September (baseline)</th>
<th>June (final)</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written</td>
<td>10</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Motor</td>
<td>28</td>
<td>52</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>68</td>
<td>30</td>
</tr>
</tbody>
</table>

Note: an overall gain score may mask gains or lack of gains in particular aspects of the assessment. For example, a student may demonstrate a lack of growth with one particular movement technique, but show notable growth with another movement technique, such that the total gain score shows growth even though the student did not demonstrate growth in all areas. Similarly, a student might show a regression in knowledge, represented by a drop in score on the written assessment, but make such notable gains in the motor assessment that the overall gain score looks strong and masks the regression in written assessment. As a result, it is important for physical education teachers to track and monitor changes in all four-movement techniques using the Observation Scoring Sheet. They should also analyze and understand students’ progress in all areas represented in the assessments.

Measuring Growth and Settings Parameters

The following Student Growth Parameters were generated with the idea that students may show growth in two ways on this assessment:

1. Increased knowledge demonstrated on the written assessment, and/or
2. Increased skill integrating more variations across more movement techniques.

The developers initially established estimated growth parameters by considering several students from past classes and their hypothesized performance on the written and motor assessments at the beginning and end of the school year. These initial parameters were then revised based on a pilot assessment with current second and third grade students. Districts that adopt this DDM should revisit and refine the current parameters based on careful review of local data collected across classes during the first years of administration, i.e., until historical trends can be established and used to inform and refine these initial parameters.

In physical education, students may range from physically challenged (e.g., physical disabilities or challenges with coordination) to physically adept (e.g., frequent and multiple extra-curricular sports). Thus, they may start the year at very different places on the pre-test assessment, particularly the motor portion of the assessment. However, during the school year, all students should show notable and relatively comparable gains in their initial scores, regardless of their starting points. The Moderate Growth Gains noted in the following Student Growth Parameters chart reflect the developers’ best estimation of scores that would reflect one year’s gains.
Consider a student who is overweight and inactive and who started the school year with a total combined pre-test score of 27 points, out of a total possible score of 80 points. If, by the end of the school year, this student earned 43 points, the gain in the assessed knowledge and skills would be 16 points.

Consider a second student who is active and has played community soccer since the age of five. Perhaps this student earns a total combined pre-test score of 50 points, out of a total possible score of 80 points, and by the end of the year earned a total combined post-test score of 71 points. This would represent an overall gain of 21 points.

According to the Student Growth Parameters chart above, both students would have demonstrated moderate growth gains, despite starting at different performance levels. That means that they achieved the expected growth for one year’s time in the same physical education class.

Piloting

Part 1: Our Pilot Plan
The pilot for this DDM, which took place from April to June 2015, investigated three questions:

1. How clear and complete are each of the sections of the DDM for physical education teachers who were not part of the initial DDM development?
2. Is the assessment considered feasible by a sample of physical education teachers and the DDM developers themselves? Can we realistically assess students’ physical skills in the manner designed?
3. What scores do end-of-year second and third graders achieve on the written and motor assessments in late May?

The pilot team consisted of four teachers - two were part of the development team and two others were invited to participate. Participating teachers were from the Walpole and Westwood public school districts. Our sample for the pilot included five physical education teachers who administered and collected data for the DDM and one physical education teacher who provided input and feedback to the DDM.
Table: Pilot Sample

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Grades</th>
<th>Sample Size</th>
<th>School</th>
<th>District</th>
<th>Primary Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1 class/grade)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher 1</td>
<td>2</td>
<td>25</td>
<td>OPR School</td>
<td>Walpole</td>
<td>Jean Kenney</td>
</tr>
<tr>
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<td>Jean Kenney</td>
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<tr>
<td>Teacher 5</td>
<td>3</td>
<td>25</td>
<td>Deerfield School</td>
<td>Westwood</td>
<td>Judith Wine</td>
</tr>
</tbody>
</table>

Participating teachers collected data pertaining to each of the three pilot questions. For example, they conducted cognitive interviews with the four physical education teachers who were not part of the DDM development to learn more about the clarity of the directions and explanations provided. In addition, all participating teachers engaged in a discussion to examine the clarity, specificity, and feasibility of the scoring process. Finally, five of the physical education teachers administered the DDM and collected the results for second and third graders’ performance scores.

**Part 2: Pilot Results & DDM Revisions**

We analyzed the data collected on the three questions noted above to identify cross-cutting strengths of our DDM, as well as concerns or issues that indicated a need for DDM revisions.

What we learned from our data for **Question 1**:

- Teachers had questions about the assessment blueprint. We added text to explain that the Assessment Blueprint is not a task sheet, but simply a resource.
- Teachers were confused about the scoring chart on page 9. We modified the chart to include the point values included on the actual scoring sheet. We added an additional column to the right to allow recording of the total points earned in the movement portion of the assessment.
- Students did not understand the word “moderate” on the written assessment, so we replaced it with “Medium” (questions #3 and #10). Students had difficulty understanding questions #7 and #8, so we modified these to read: “How much **force** should be used to throw a pass to someone who is close?” and “Which of the following actions best describes a direction?”

What we learned from our data for **Question 2**:

- Teachers thought this DDM was feasible to assess movement concepts in a motor skill activity.
- Teachers thought the “Observation Scoring Sheet” was very user friendly.
- Teachers thought the written quiz was quick and easy to use to assess students’ knowledge.
• It was recommended by 2nd and 3rd grade classroom teachers that the assessors should have students read the questions and the answers and then ask questions prior to taking the quiz to ensure student comprehension prior to responding to items.

We gathered the data below for Question 3, which shows second and third grade students’ low and high scores for written and motor assessments and the central tendency of each set of scores.

**TABLE: Score Results from Pilot Administration of Written and Motor Assessments in Grade 2 & 3**

<table>
<thead>
<tr>
<th>GRADE 2</th>
<th>Written Assessment</th>
<th>Motor Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># Written Assessments Completed</td>
<td>Distribution of Scores</td>
</tr>
<tr>
<td></td>
<td>Low Score</td>
<td>High Score</td>
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<tr>
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<td>Teacher 2</td>
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<td>4</td>
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<tr>
<td>Teacher 3</td>
<td>23</td>
<td>2</td>
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<table>
<thead>
<tr>
<th>GRADE 3</th>
<th>Written Assessment</th>
<th>Motor Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># Written Assessments Completed</td>
<td>Distribution of Scores</td>
</tr>
<tr>
<td></td>
<td>Low Score</td>
<td>High Score</td>
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<tr>
<td>Teacher 5</td>
<td>22</td>
<td>10</td>
</tr>
</tbody>
</table>

Based on our analysis of these data, we identified the following top issues for revision:

• We recognized that one teacher (Teacher 2) had higher scores on the motor assessment than the others. Based on this discrepancy, we added the following recommendation to the administration protocol: Prior to assessing the motor skills assessment portion of the DDM, assessors should collaborate to have a clear and consistent understanding of the definition and interpretation of the movement concepts being performed.

• Revisions were made to the written component of the DDM to replace challenging vocabulary with grade-level appropriate vocabulary.

• Based on the collected data, we found that the estimated student growth between end-of-year second graders and end-of-year third graders was not as great as anticipated. The contributing variables included the fact that we were not measuring the same grade level or students, and there were many different
assessors at multiple schools. We also question whether a larger sampling would produce different results. Future users of this DDM should investigate this further using their own local data.

- In scoring motor performance we found that “Levels” is a difficult movement concept to assess. Students will often change their level in order to catch a pass rather than changing their level to move to open space. We are leaving this in the DDM, however, in order to allow for possible growth for students entering at a higher level than others. Also, leaving this in may prompt teachers to teach and observe this skill more intentionally, which may contribute to this movement becoming more observable in students’ performance. Videotaping students’ performance greatly enhanced our ability to assess this skill.

Finally, we originally estimated the growth parameters for students over the course of a school year. However, our pilot only occurred at the end of the 2014-15 school year. It will be important for any school district that adopts or modifies this DDM to collect its own student data for the entire school year, and then examine whether these growth parameters are appropriate.

**Assessment Blueprint**

The assessment blueprint is a resource only; it is not an additional task for teachers or students. The blueprint is an elaboration of the content table included in the introduction. It serves two purposes: first, it is a roadmap for the assessment development team to ensure balanced coverage of the most important content, and second, it is a key for other potential users of the assessment by concisely indicating what content the assessment is designed to measure and the level of rigor with which the content is covered. (See pages 12 and 29 of ESE Technical Guide A for more information.)
### Assessment Blueprint - Direct Measure

**Step 1:** Enter the total # of points you want to include in the assessment: 80 points

**Step 2:** Enter the relative weight you want to assign to covered content.

<table>
<thead>
<tr>
<th>Content (Standard)</th>
<th>Weight (% of Overall Measure)</th>
<th># of allotted points</th>
<th>Cognitive Complexity</th>
<th>Item Difficulty</th>
<th># of items in content area</th>
<th>average points per item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students demonstrate knowledge of movement vocabulary, including open space, direction (forward, backward, sideways-left and right), levels (low, middle, and high), force (strong and light), time (fast and slow), and pathways. (MA Health Standards do not explicitly state that students will know movement vocabulary and concepts before applying them.)</td>
<td>25%</td>
<td>20</td>
<td>9</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Students apply and integrate knowledge of movement vocabulary and concepts (above) to physical activities, including invasion games. Physical Activity and Fitness, Standard 2.1: By the end of grade 3, students apply movement concepts including direction, balance, level (high, low), pathway (straight, curve, zigzag), range (expansive, narrow), and force absorption (rigid, with bent knees) to extend versatility and improve physical performance. (MA Comprehensive Health Curriculum Framework)</td>
<td>75%</td>
<td>60</td>
<td>0</td>
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</table>

**Step 3:** Confirm point allotments.

**Step 4:** Describe the type of items you want to develop in terms of cognitive complexity and item difficulty. The corresponding number of items and points per item will be determined.

<table>
<thead>
<tr>
<th>Low Items</th>
<th>High Items</th>
<th>Easy Items</th>
<th>Moderate Items</th>
<th>Hard Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 items</td>
<td>5 items</td>
<td>4 items</td>
<td>1 item</td>
<td>4 items</td>
</tr>
</tbody>
</table>

**Step 5:** Confirm number of items and average points per item.

<table>
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<tr>
<th>Totals</th>
<th>100%</th>
<th>80 points</th>
<th>9 items</th>
<th>5 items</th>
<th>4 items</th>
<th>6 items</th>
<th>4 items</th>
<th>14 items</th>
</tr>
</thead>
</table>

**edit password:** EDIT
Name: __________________________ Date: _____________ Classroom: __________

Movement Concepts & Vocabulary Quiz

1. Which word describes a **direction**?
   A. **Forward**
   B. Straight
   C. Low
   D. Fast

2. When rolling a ball, which **pathway** do you usually want the ball to go?
   A. **Straight**
   B. Zigzag
   C. Fast

3. How much **force** should be used to throw a pass to someone far away?
   A. **Strong**
   B. Medium
   C. Light

4. What is the best **pathway** when trying to get away from a defender?
   A. **Straight**
   B. Zigzag
   C. Curved
   D. High

5. What **level** is the ball in this photo?
   A. High
   B. **Medium**
   C. Low

6. What is **open space**?
   A. Out of bounds
   B. Next to another player
   C. **Away from other players**

7. How much **force** should be used to throw a pass to someone close?
   A. Fast
   B. Curved
   C. Strong
   D. **Light**

8. Which of the following actions best describes a **direction**?
   A. Throwing a fast ball
   B. **Running forward over the hurdle**
   C. Kicking the ball hard to score
   D. Skipping in a zigzag pattern

9. You are in a **self/personal space** when you are:
   A. Next to another student
   B. **Not near a person or equipment**
   C. Out of bounds
   D. Close enough to touch another person

10. What **speed** do you use when jogging?
    A. Fast
    B. **Medium**
    C. Slow
1. Which word describes a **direction**?
   A. **Forward**
   B. Straight
   C. Low
   D. Fast

2. When rolling a ball, which **pathway** do you usually want the ball to go?
   A. **Straight**
   B. Zigzag
   C. Fast

3. How much **force** should be used to throw a pass to someone far away?
   A. **Strong**
   B. Medium
   C. Light

4. What is the best **pathway** when trying to get away from a defender?
   A. Straight
   B. **Zigzag**
   C. Curved
   D. High

5. What **level** is the ball in this photo?
   A. High
   B. **Medium**
   C. Low

6. What is **open space**?
   A. Out of bounds
   B. Next to another player
   C. **Away from other players**
   D. Next to the player with the ball

7. How much **force** should be used to throw a pass to someone close?
   A. Fast
   B. Curved
   C. Strong
   D. **Light**

8. Which of the following actions best describes a **direction**?
   A. Throwing a curve ball
   B. **Running forward over the hurdle**
   C. Kicking the ball hard to score
   D. Skipping in a zigzag pattern

9. You are in a **self/personal space** when you are:
   A. Next to another student
   B. **Not near a person or equipment**
   C. Out of bounds
   D. Close enough to touch another person

10. What speed do you use when jogging?
    A. Fast
    B. **Medium**
    C. Slow
<table>
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<tr>
<th>Student:</th>
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<th>SPEED</th>
<th>DIRECTION</th>
<th>PATHWAYS</th>
<th>LEVELS</th>
<th>Total Points for Motor Assessment</th>
<th>Combined Points for Written and Motor Assessments</th>
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