



DEPARTMENT OF

Education

STATE OF MAINE

**A Report To The Joint Standing Committee on Education and
Cultural Affairs on the Physical Education Capacity of
Elementary Schools As Requested Through Public Law, Chapter
264 (LD 1407) “An Act to Assess the Physical Education Capacity
of Elementary Schools in Maine and To Establish the Obesity and
Chronic Disease Fund within the Department of Education”**

Prepared by:
The Maine Department of Education

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EXECUTIVE SUMMARY

On June 4, 2009, Governor John E. Baldacci signed into Law LD1407, "An Act to Assess the Physical Education Capacity of Elementary Schools in Maine and to Establish the Obesity and Chronic Disease Fund within the Department of Education," sponsored by Representative Seth Berry and Representative Lisa Miller. This legislation directed the Maine Department of Education to conduct a statewide assessment of the current Physical Education capacities of elementary schools in the State. Data on this initiative was collected in January 2010, with a report including findings and recommendations to be presented by the Maine Department of Education to the Joint Standing Committee on Education and Cultural Affairs.

OVERVIEW

In an effort to answer specific questions raised by the 124th Maine State Legislature through the enactment of LD1407, this report details findings of survey research conducted in January and February of 2010.

The Act described the "Physical Education Assessment" as follows:

The Commissioner of Education shall conduct a statewide assessment, using a survey or sampling methodology, of the current physical education capacities of elementary schools in the State. The assessment must include:

- 1. The average teacher-to-student ratio for academic classes and the average teacher-to-student ratio for physical education classes;*
- 2. The average minutes of physical education per week per student by grade;*
- 3. The average minutes of recess or other opportunity for physical activity during school hours per week per student by grade;*
- 4. The physical plant, infrastructure and equipment in place to support the physical education program;*
- 5. The methods being used to evaluate the physical education of students; and*
- 6. The capacity to conduct baseline fitness assessments and monitor achievement of elementary students.*



SURVEY METHODS

In fulfillment of LD 1407, the Maine Department of Education's Physical Education Consultant, Jayne Chase, convened an advisory committee of teachers, school administrators, research experts, and colleagues from various state departments and non-profit agencies to study and make recommendations based on the design and development of the Physical Education Assessment (See Appendix B: Invited to Advisory Committee).

This group decided that a survey of all Maine PreK-8 Physical Education teachers would be conducted and used to serve as the primary assessment device. The questions to be used in the survey were generated by a sub-group of the advisory committee. This sub-group originally generated 20 research questions based on the Legislative charge. In December of 2009, the Maine Department of Education contracted with John Brandt, a research consultant, to convert the questions into a web-based digital format that subjects in the study could respond to online. The contract with Mr. Brandt was extended to include an initial analysis and report of the results.

In working with the consultant, the final number of questions was increased to 27 ranging from multiple choice to open response questions. The survey questions were published into an online format using an application called SurveyGizmo. During the week of December 18th, 2009, ten physical education teachers participated in a pilot of the survey (See Appendix B: Survey Pilot Teachers). Edits were made to the questions based upon their feedback. The full survey was opened to all Maine PreK- 8 Physical Education teachers on January 14, 2010 with a closing date of January 25th. The application was re-opened to allow some additional teachers to complete the survey, with February 5, 2010 being the last day the survey was open.

In all, 510 certified Maine teachers were invited through e-mail to participate in the research study. Due to a variety of factors, including filtering on school internet-based mail servers, it is estimated that 474 e-mails actually reached their intended target with 357 teachers responding by completing the survey. An additional number of teachers began the process but did not complete all of the questions.

In the directions, it was clearly indicated that the participants were to complete one survey for each school that an individual teacher worked in. The directions also stipulated that in situations where more than one physical education teacher worked in the same school, only one teacher was to complete the survey for that school. Despite these instructions, the data collected found duplications. Using a standard protocol to cull duplicate records, the final count of 315 records (representing 308 public schools, 7 non-public schools) were deemed useable and analyzed.



SUMMARY OF SURVEY RESULTS

General Descriptive Analysis

Although the sample contains 315 usable records, a total of 357 surveys were completed. Given the number of e-mails that were successfully sent (474), this is a response rate of approximately 75.32%. Since there are 463 schools in Maine with students in grades PreK to 8, the survey represents data from approximately 68% of those schools. The results from the entire sample (including the non-public schools) were included in the analysis related to class size, recess and opportunities for additional daily physical activity. However, the data from the non-public schools was excluded from analysis related to capacity, student assessment and curriculum as these factors are generally regulated by the policies of private school boards. (See Appendix A: Table 1: Number and Percentage of Valid Responses from Schools Public and Private Compared to Actual Numbers of Schools Public and Private by County).

Summary Results for Research Questions

Research Question 1:

The average teacher-to-student ratio for academic classes and the average teacher-to-student ratio for physical education classes.

Two survey questions were used to gather this data. Specifically, participants were asked to provide the information by checking off the teacher-to-student ratio from a set of ranges.

For academic classes, respondents indicated that the statewide average for all grades fell within the range of one teacher to 16 to 20 students. Over 46% of the respondents statewide reported this as the average across all grades. Further analysis shows the trend is fairly consistent across grades with only PreK classes showing lower teacher-to-student ratios. The most common ratio for that grade is reported in the range of one teacher to 11 to 15 students. Less than two percent of the respondents indicated the teacher-to-student ratio equaled or exceeded 26 or more students per teacher.

For Physical Education classes, the picture is quite similar. In statewide and all grades, the significant majority (41.56%) of respondents reported that the average teacher-to-student ratio was also one teacher to 16 to 20 students. The breakdown by grade level essentially mirrors the findings in academic classes with nearly all grades showing the most common teacher-to-student ratio being one teacher to 16 to 20 students. The exception was at the PreK level where 35.71% of respondents reported teacher-to-student ratios in the range of one teacher to less than 10 students. This was close to the next highest group (31.63%) which reported teacher-to-student ratios at one teacher to 11 to 15 students. The other exceptional group was grade 6, where a small majority (32.56% compared to 31.40%) indicated the most common teacher-to-student ratio was 21 to 25 students. Indeed, a basic analysis of central tendency shows a trend for higher teacher-to-student ratios at the higher grades (grades 6 - 8) than in the lower grades. This trend does not appear to be statistically significant.



Research Question 2:

The average minutes of physical education per week per student by grade.

Because of the manner in which physical education is taught in Maine schools, there is no easy way to answer this question in the aggregate. The data confirms that the average number of minutes of physical education will vary based upon grade level with students in the upper grades receiving more physical education instruction than students in the lower grades. To better calculate and understand these factors, the research question was broken down into three survey questions:

- For each grade that you teach Physical Education, please indicate length of class.
- For each grade that you teach Physical Education, please indicate how many days per week the class is offered.
- For each grade that you teach Physical Education, please indicate the number of minutes per class.

The vast majority of respondents (92.71%) indicated "Full Year" was the length of class. The use of other grading periods (e.g., quarters, semesters, trimesters) were relegated to very few schools and only those with grades 6 through 8.

Responses to the second question suggest that statewide and including all grades, the number of days per week in which Physical Education classes are offered are almost evenly distributed between one and two days per week. Collectively, these two responses account for 89.8% of the responses. However, further analysis showed that for grades PreK to 4, the slight majority of schools had Physical Education instruction one day per week. In Grades 5 to 8, there was a trend of having two or more days of Physical Education instruction per week (See Appendix A: Figure 1: Number of days of Physical Education Instruction by Grade).

The third measure yielded an interesting response pattern. The general distribution shows that lower grade classes of Physical Education are shorter in length as compared to upper grade Physical Education classes. Also, the statewide data of all grades shows that the most common time frame for number of minutes per class is between 36 to 45 minutes, accounting for 56.46% of the sample (See Appendix A, Table 2: Minutes per Class of Physical Education by Grade and Figure 2: Total Number of Minutes per Day of Physical Education by Grade).

Perhaps a better way to look at this data would be to compare an average second grade student with an average eighth grade student in Maine schools. The second grade student would typically have Physical Education instruction for a full year (36 weeks), one day per week, for a period of about 36 minutes. This equates to approximately 1,296 minutes (21.6 hours) of Physical Education per year; 36 minutes per week. In the same analysis, the eighth grade student would have Physical Education instruction for a full year (36 weeks), twice per week for a period of approximately 43 minutes. This equates to approximately 3,096 minutes (51.6 hours) of Physical Education per year; 86 minutes per week.



Research Question 3:

The average minutes of recess or other opportunity for physical activity during school hours per week per student by grade.

Due to the complexity of the factors related to this question, the research question was divided into multiple parts. First participants were asked about recess activities in their school using four questions:

- For each grade in your school, please indicate if recess is scheduled during the school day.
- For each grade in your school, please indicate how many days per week recess is offered.
- For each grade in your school, please indicate how many recess periods are offered.
- For each grade in your school, please indicate the total number of minutes per day recess is offered.

Next respondents were asked about other opportunities for students to engage in physical activity during school hours with two more survey questions:

- Besides recess and Physical Education, are you aware of other opportunities for students to be physically activity during school hours for 10 consecutive minutes or more?
- If you answered "Yes", please indicate what activities your school offers.

The vast majority of the respondents (89.42%) indicated that recess was scheduled during the school day. The trend, however, was that recess was much more common in the lower grades (PreK - 5) than in the higher grades (6 – 8). Specifically, the data shows that 98.36% of the respondents indicated that recess was scheduled in grades PreK through 5 compared to 63.5% in grades 6 through 8 (See Appendix A: Table 3: Number and Percent of Schools Where Recess is Offered by Grade Level).

According to respondents, for the schools that offered recess to students, a significant majority (96.05%) reported that recess was offered in their school five days per week. When comparing grade levels, nearly all reported recess was five days per week. For the schools that offered recess to their students, the majority of respondents (61.04%) indicated that their schools offered one period of recess per day. 36.61% of the respondents indicated that their schools offered recess twice per day.

Lastly, with regard to the total number of minutes per day recess is offered, the responses for this question show some mixed results. In schools that offered recess to their students, statewide and looking at all grades, the largest group of the respondents (30.54%) indicated that the total number of minutes per day of recess was in the range of 16 - 20 minutes (See Appendix A, Table 4: Number of Minutes of Recess per Day by Type of School).

Regarding students' physical activities outside of Physical Education class and recess, the majority of participants (53.02%) in the survey reported they were not aware of other opportunities for students to be physically active during school hours. In the cases where participants were aware of additional opportunities for students to be physically active during the



school day, 23.61% reported that their schools offered physical activity "incorporated into classroom lessons" and 14.58% reported the school had a "walking program or mileage club." Another 28.82% indicated other types of activities including the "Take Time" program, intramurals, and snowshoeing.

Research Question 4:

The physical plant, infrastructure and equipment in place to support the physical education program.

This research question was assessed using two survey questions. Specifically, the survey asked participants if the gymnasium in their school was used primarily for Physical Education classes. The overwhelming number of respondents statewide indicated "yes" (87.62%). When asked to indicate what other areas were used for Physical Education instruction, the lead responses were: field (85.62%) and multipurpose room (39.73%). Counties where the schools lack a gymnasium dedicated for use in Physical Education, range from lows of 0% in Aroostook, Piscataquis and Sagadahoc to highs of Knox (26.32%), Somerset (20.83%) and Franklin (16.67%) (See Appendix A: Table 5: Number of Schools Reporting No Gymnasium).

Research Question 5:

The methods being used to evaluate the physical education of students.

When asked what specific methodologies were used by teachers to assess students in Physical Education, participants reported that the most commonly used criteria were class "participation" (93.83%) and "responsible and cooperative behaviors" (93.18%). The least common criterion used was class "attendance" (62.46%) (See Appendix A: Figure 3: Assessment Criteria Used to Evaluate Students in Physical Education Class).

Participants were also asked about the use of various fitness tests to evaluate students in Physical Education class. The most commonly used fitness tests reported by the sample was the "Presidential Physical Fitness Challenge" used by 41.88% of respondents and the Cooper Institute's "FITNESSGRAM" used by 32.14% of respondents. Most schools appear to use multiple fitness tests, however, 48 of the respondents (15.58%) reported that no fitness test was used in their respective school (See Appendix A: Table 6: Frequency Counts of Various Fitness Tests Used in Maine Schools).

Research Question 6:

The capacity to conduct baseline fitness assessments and monitor achievement of elementary students.

The results of the survey show that nearly 85% of the respondents utilize one or more fitness tests annually with their students. To determine what barriers were present that prevented teachers from conducting fitness tests annually, respondents most commonly cited a lack of time (17.86%). The second most noted barrier was "other," (9.42%) while 8.77% of the



respondents cited “not enough money in the budget to purchase these tests” (See Appendix A: Table 7: Frequency of Barriers to Using Fitness Tests Annually).

Participants were also asked if the fitness test records for each student were tracked and how the results of the fitness tests were used. In all, 43.51% of the respondents tracked students' fitness records. The vast majority (69.16%) report that the fitness data is used to "improve a student's individual performance." 42.86% of the sample reported that the results of the fitness tests are shared with parents/guardians. According to the survey results, the use of the fitness tests to inform school policy was the least common use.

CONCLUSION AND NEXT STEPS

The data from the LD 1407 Physical Education assessment provides a sufficient number and range of respondents to serve as baseline for answering the research questions posed in this legislation. This information will assist the Maine legislature as well as other organizations and agencies in developing statewide goals and initiatives as appropriate. In addition, the Maine Department of Education will continue to use and work with this information in the following manner:

- Disseminate information through the Maine Association for Health, Physical Education, Recreation, and Dance (MAHPERD) via annual conference, website and newsletter.
- Provide data to the Maine Principals' Association (MPA), Maine School Management Association (MSMA) and the Maine Governor's Council on Physical Activity.
- Continue work with schools, organizations and agencies to enhance current Physical Education and physical activity programming in schools as well as providing support to these organizations when applying for state and national grants.



APPENDIX A

Table 1 - Number and Percentage of Valid Responses from Schools (Public and Private) Compared to Actual Numbers of Schools (Public and Private) by County

County	Total K-8 Schools	Responding Schools	Ratio
Androscoggin	26	22	84.62%
Aroostook	36	23	63.89%
Cumberland	64	51	79.69%
Franklin	12	8	66.67%
Hancock	29	18	62.07%
Kennebec	40	27	67.50%
Knox	19	13	68.42%
Lincoln	14	9	64.29%
Oxford	21	17	80.95%
Penobscot	56	43	76.79%
Piscataquis	9	6	66.67%
Sagadahoc	12	9	75.00%
Somerset	24	16	66.67%
Waldo	22	6	27.27%
Washington	31	10	32.26%
York	48	37	77.08%
	463	315	68.03%

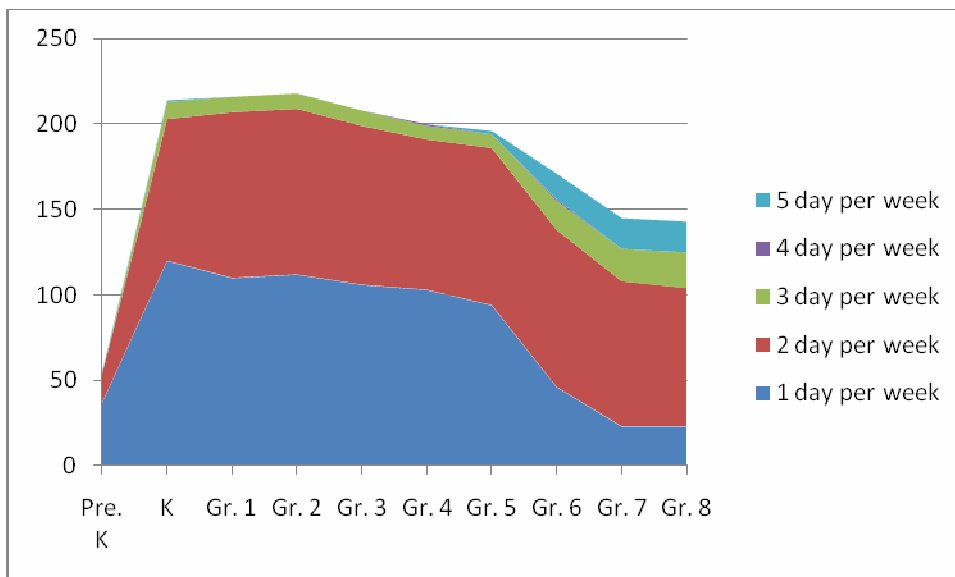


Figure 1 - Number of days of Physical Education instruction by grade



Table 2 - Minutes per Class of Physical Education by Grade.

Minutes per class	Pre. K	K	Gr. 1	Gr. 2	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Sum	%
20 min or less	22	8	1	0	0	0	0	0	0	0	31	1.70%
21 - 25 min.	7	1	1	0	0	0	0	0	0	0	9	0.49%
26 - 30 min.	27	93	74	75	42	23	12	6	5	2	359	19.74%
31 - 35 min.	2	14	11	11	12	12	9	4	2	3	80	4.40%
36 - 40 min.	4	64	76	75	85	81	76	52	26	25	564	31.01%
41 - 45 min.	2	27	42	43	52	57	59	60	60	61	463	25.45%
46 - 50 min.	0	7	9	12	11	17	28	25	23	22	154	8.47%
51 - 55 min.	0	1	1	1	1	2	2	10	11	9	38	2.09%
56 - 60 min.	0	1	2	1	7	8	9	12	13	13	66	3.63%
61 min. or more	5	3	2	2	3	5	6	7	11	11	55	3.02%

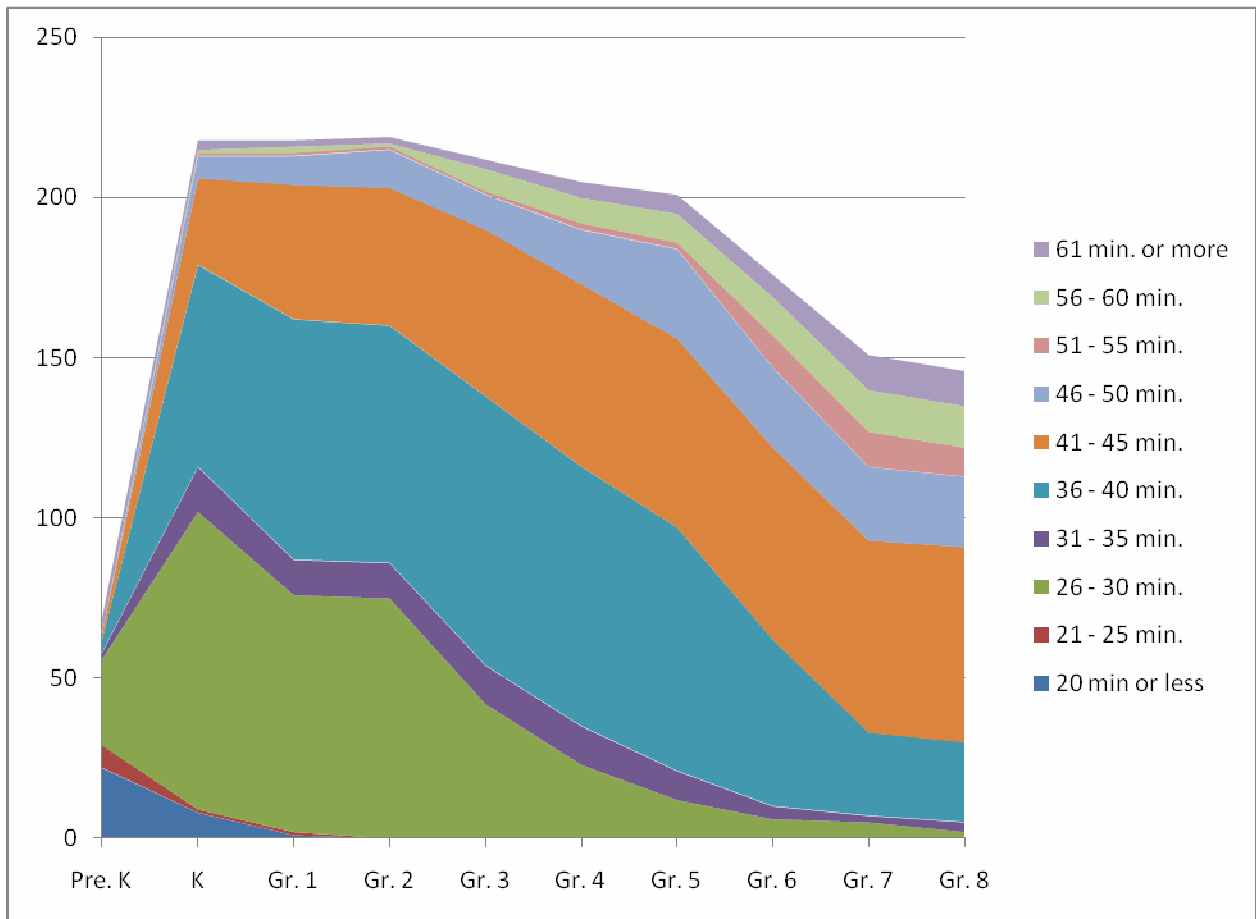


Figure 2 - Total number of minutes per day of Physical Education by grade



Table 3 - Number and Percent of Schools Where Recess is Offered by Grade Level.

	PreK	K	Gr. 1	Gr. 2	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8
Yes	82	216	217	220	209	203	196	170	147	146
Percent Yes	89.02%	98.61%	99.54%	99.55%	99.04%	99.01%	97.96%	75.29%	57.14%	56.16%

Table 4 - Number of Minutes of Recess per Day by Type of School

K-5			MS/JHS		
15 min or less	8	3.19%	15 min or less	4	8.00%
16 - 20 min	74	29.48%	16 - 20 min	13	26.00%
21 - 25 min	48	19.12%	21 - 25 min	11	22.00%
26 - 30 min	49	19.52%	26 - 30 min	9	18.00%
31 - 35 min	24	9.56%	31 - 35 min	6	12.00%
36 - 40 min	32	12.75%	36 - 40 min	7	14.00%
41 - 45 min	5	1.99%	41 - 45 min	0	0.00%
46 or more min.	11	4.38%	46 or more min.	0	0.00%

Table 5 - Number of School Reporting No Gymnasium

County	No. of Schools Without Dedicated Gymnasium
Androscoggin	2
Aroostook	0
Cumberland	8
Franklin	2
Hancock	2
Kennebec	3
Knox	5
Lincoln	1
Oxford	1
Penobscot	1
Piscataquis	0
Sagadahoc	0
Somerset	5
Waldo	1
Washington	0
York	7

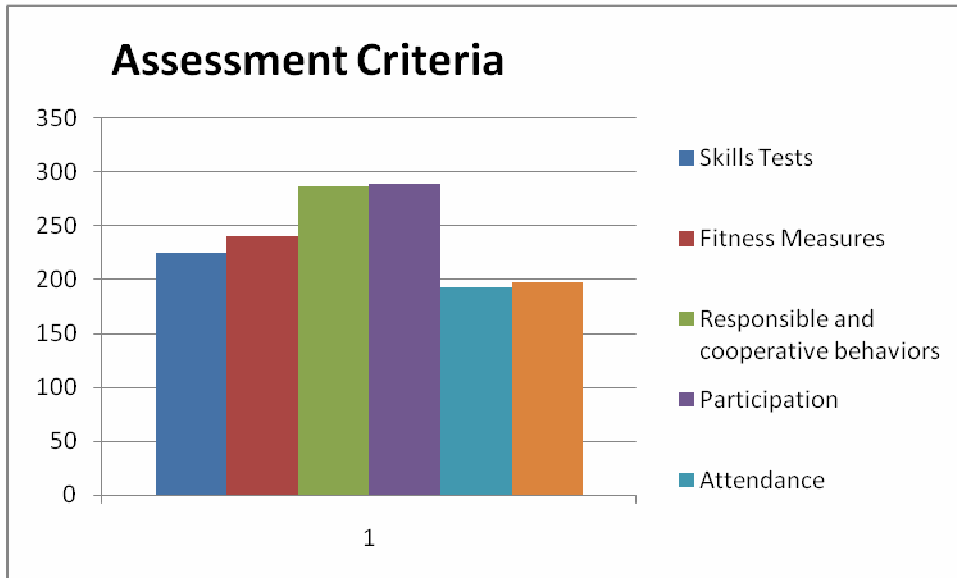


Figure 3 - Assessment criteria used to evaluate student in Physical Education class

Table 6 - Frequency Counts of Various Fitness Tests Used in Maine Schools

Fitness Test	Freq.	% of Total Sample
Presidential Physical Fitness Challenge	129	41.88%
Physical Best	14	4.55%
FITNESSGRAM	99	32.14%
Local fitness test	64	20.78%
Other	30	9.74%
No test used	48	15.58%

Table 7 – Frequency of Barriers to Using Fitness Tests Annually

Barrier	Freq.	% of Total Sample
There is not enough money in the budget to purchase these tests	27	8.77%
I don't have enough time to include these tests in the curriculum	55	17.86%
I need training on how to use these tests	13	4.22%
Lack of access to technology	8	2.60%
Lack of availability of technology resources (i.e., software)	14	4.55%
Other	29	9.42%



APPENDIX B

LD 1407, Invited to Advisory Committee

Name	Affiliations	Email
Rep. Seth Berry	Legislature	Repsethberry@legislature.maine.gov
Rep. Lisa Miller	Legislature	lisammaine@gmail.com
Dr. Walter Harris	Univ. of Maine/Research Center	wharris@maine.edu
Dr. Lori Smith	Univ. of Maine/Research Center	Lori.smith@umit.maine.edu
Dr. Stephen Butterfield	Univ. of Maine/Kinesiology	Stephen.butterfield@umit.maine.edu
Richard Durost	MPA	mpa@mpa.cc
Sandra MacArthur	MSMA	smacarthur@msmaweb.com
Phil Dionne	Retired State School Board	padionne@gwi.net
Dr. Michael Wilhelm	Superintendent, SAD 75	wilhelmm@link75.org
James Hodgkin	Superintendent, RSU 4	James.hodgkin@rsu4.org
David Stockford	MDOE/Special Services	David.stockford@maine.gov
Jo Dill	Exec. Director/MAHPERD	hawks@gwi.net
Barbara Godfrey	Manchester Elementary/PE	Barbara_Godfrey@maranacook.org
Dennise Whitley	American Heart Association	Dennise.whitley@heart.org
Anna Moorman	Health Policy Partners	amoorman@mcd.org
Jamar Croom	Maine Nutrition Network	jcroom@usm.maine.edu
Karen O'Rourke	Maine Center for Public Health	korourke@mcph.org
David Crawford	Maine CDC	David.crawford@maine.gov
David Stockford	MDOE/Special Services	David.stockford@maine.gov
Susan Berry	MDOE, Health Education	susan.berry@maine.gov
Mary Ellen Doyle	MDOE/Physical Activity	Maryellen.doyle@maine.gov
Nancy Dube	MDOE/School Nursing	Nancy.dube@maine.gov
Dana Duncan	MDOE/Data Management	Dana.duncan@maine.gov
Brian Snow	MDOE/Data Management	Brian.snow@maine.gov

LD 1407, Pilot Teachers for Physical Education Survey

Name	Affiliations	Email
Lauren Brown	Boothbay Elementary School	lbrown@bres.boothbay.k12.me.us
Scott Colby	Ralph M. Atwood Primary School	scolby@rsu18.org
Barbara Godfrey	Manchester Elementary School	Barbara_Godfrey@maranacook.org
Carolyn Gross	Jack Memorial School	cgross@sad6.k12.me.us
Linda Hanson	Wiscasset Middle School	LHanson@svrsu.org
Nancy Martin	Fayette Central School	Nancy_Martin@maranacook.org
Denise Preisser	Lincoln Middle School	preisd@portlandschools.org
Marge Queen	Longfellow Elementary School	queenm@portlandschools.org
Tim Soule	Hall-Dale Middle School	tsoule@halldale.org
Becky Wetherbee	Etna-Dixmont School	bwetherbee@rsu19.org