Mathematics 7

Resolving Conflict Peacefully | Developing Self-Esteem | Living Respectfully | Preventing Prejudice | Respecting Diversity

Parent Participation Project
Inviting (Aboriginal) Parents to your Math Class

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Lesson or Plan Objective

The purpose of the lesson is to engage students in a cooperative small group activity designed to involve parents and/or guardians in the education of their children by having students collectively design a survey instrument focused on promoting interaction with and exploring parental involvement options. This lesson could be used after an introduction to measures of central tendency and dispersion or variance with some prior knowledge of graphing software applications. After students have some familiarity with the strand on statistics and probability (data analysis), the lesson will explore opportunities to apply their understanding to their personal or local context. The project will also incorporate ICT Learning Outcomes using technology to communicate the results of their findings. The *Learning Commission Report* has guided the focus of this lesson in the consistent identification of low involvement of Aboriginal parents in the education of their children. In an effort to address this problem, the lesson attempts to involve parents in a low-risk manner that relates to a typical classroom activity. A two-step process allows the parents to, first participate in the lesson and, second to provide options for future areas of involvement that would be of interest to them.

You can preach at them: that is a hook without a worm;
You can order them to volunteer: that is dishonest;
You can call on them; you are needed,
and that approach will hardly ever fail.
Kurt Hahn

🕘 Time

50-minute introduction and question formation – Day 1
20-minute survey review and revision – Day 2
50-minute analysis of data – Day 3
50-minute presentation of data and activity proposal – Day 4

✂ Materials

- Overhead projector
- Handout #1-Sample Parental Survey Questionnaire
- Handout #2- Sample Cover Letter
- Handout #3-Rubric for Parent Participation Project
- Graph paper
- Poster paper
- Multicoloured markers
- Glue
- Scissors
- Computer access with software including: Excel, Word and/or Power Point

Getting Started

Knowledge Now
Start the lesson by reviewing what they already know about the mechanical calculation of measures of central tendency and variation and talk about various applications of these measures and how they are commonly used within and beyond the school environment. This could be completed as a Think-Pair-Share activity. Students will be expected to record notes and definitions of mean, median, mode and variation. Discussion could relate to sport statistics: for example, hockey scores, family members, number of cousins, student height, hours spent watching television or video game use.

Engaging Interest
Talk about the goal of promoting parental involvement within the school and the objective of having parents attend or participate in the class. Identifiable barriers and the possible benefits of participation can also be discussed or debated. Ultimately the question about how to appropriately involve parents in the class needs to be formulated. The objective emanating from the group discussion should be the creation of a survey instrument students could administer to their parents to provide feedback about how comfortable they would be participating in the class. Because the project will require the input of each family (where possible) and involves a cooperative effort amongst peers, students should identify the relevance of the assignment and be motivated to participate in their association with parents and peers.

Learning Activities

Day 1 - 50 min
Briefly outline to the class an overview of the project and provide each student with a copy of Handout #3-Rubric for Parent Participation Project and review the evaluation criteria with them.

Divide the class into groups consisting of two to three students as selected by the teacher. Selection should consider the objective of ensuring that each student has the opportunity to eventually work with every other student in the class. Once the groupings are assigned, students are given the instruction to brainstorm to develop approximately 10 survey questions that they will share with the class in approximately 15 minutes. The questions should center on answering

the issue about how parents could be appropriately invited to participate in the classroom. A sample of possible questions is provided in the supplementary resource section.

After approximately 15 minutes, the class should reconvene to share possible questions on the blackboard or overhead. Once a collection of questions have been compiled and edited, students are invited to return to their group to select 10 they wish to use to survey their parents. The sample survey will help to guide the student choose a format and the type of questions that might be generated. Students should use a computer to type out their questions in an effort to create a clean and attractive document to give to their parents. Each group will design its own survey using individual style, instructions, and presentation-font size and type. The questionnaire should be handed in at the end of the period. Evaluation will be completed according to general appearance, user friendliness, quality of instruction and use of technology to produce a creative survey instrument. The evaluation of the questionnaire is included as part of the Handout #3-Rubric for Parent Participation Project. Attention and sensitivity to individual circumstances will need to be considered to prevent awkward or uncomfortable situations if students come from non traditional families.

Day 2 - 20 min
The proposed questionnaire, following review by the teacher for clarity and grammar and so on, will be returned to the student groups for possible revision. Students are then directed to take the document home with the accompanying cover letter (Handout #2-Sample Cover Letter) explaining the purpose of the project. Each student will take home the same survey questions so that the same data may be compared and compiled the next math class. Students are also invited at this time to make predictions through discussion and then record this information for future reference about how they think their parents will respond to the various questions and which option might prove most popular.

Day 3 - 50 min
The students will have returned to class with their completed questionnaires and will engage in some rudimentary data analysis. Assigning values of 1-5 to the Likert rating scale, the students combine their individual data into a collective form. The three measures of central tendency as well as patterns of variation are to be calculated. This information is to be summarized in poster form to be presented to the class with a final recommendation about a possible activity that would involve inviting their parents to participate in their classroom. Students are encouraged to identify limitations, validity, anonymity and relevance of the data as well as relate anecdotal instances associated with their interaction with their respective parents. Based on the information gleaned from each presentation a decision could be made about actually inviting parents to class sponsored activity, perhaps to see the results of their surveys.

Students then need to generate a histogram, tally chart or circle graph in order to present the information using the computer programs Excel and Word. Students familiar with PowerPoint are encouraged to submit their project in that form as well but should also be prepared to speak for a few minutes about their poster presentation.

Day 4 - 50 min
Presentation of survey findings – parents could be invited to view presentation and comment on accuracy of findings.

Assessment/Analysis

Students can be assessed using Handout #3-Rubric for Parent Participation Project on the quality and content of their questionnaire, poster, oral presentation, peer and self-assessed role fulfillment and their depth of interpretation of the data analysis. Students should also be encouraged, through classroom discussion, to reflect on what additional information they require and what they could have done differently to improve the quality of their findings and presentation.

Application

The project has obvious applications to the real-world life of the students especially if it leads to the direct participation of their parents in their classroom. This activity engages the student to work with his or her parents and creates an additional opportunity for dialogue and interaction. The objective of the survey is to get parents actively thinking about how they might become more aware of what their children are doing in school and how involved they want to be.

Activities for Extension and/or Integration

This project uses statistical analysis to involve parents directly in the work of their children, and the process may be readily transferred to other subject areas. The rather bland process of calculating mode, mean and median should have greater significance when it relates to the parents and may form an invitation for them to take a closer look at what their children are doing in school. This lesson could be extended to the other three core subject areas to consider ways to involve parents in each of those subjects. A plan could be created and the information shared with school board members, parents, school staff, and students increase parental participation.

Subject and Level Learner Outcomes for Subject and Level

Math 7

General Outcome

Develop and implement a plan for the collection, display and analysis of data, using measures of variability and central tendency.

Specific Outcomes

1. Formulate questions for investigation from a real-world context. [C, CN, R]

2. Select, defend and use appropriate methods of collecting data: designing and using questionnaires, interviews, experiments, research. [C, PS, T]

3. Describe issues to be considered when collecting data; eg, appropriate language, ethics, cost, privacy, cultural sensitivity. [C, CN, R]

4. Display data by hand or by computer in a variety of ways, including circle graphs. [C, T, V]

5. Read and interpret graphs. [C, E, PS, R]

6. Determine measures of central tendency for a set of data: mode, median, mean. [PS]

7. Interpolate from data to make predictions.

Safe and Caring Topics and Concepts

Living Respectfully

- Exploring the role of communication skills in building a Safe and Caring classroom.
- Working collaboratively in groups.

Developing Self Esteem

- Communicating thoughts and feelings

Respecting Diversity and Preventing Prejudice

- Respecting different points of view builds community and helps to prevent or resolve conflict.
- Recognizing and appreciating that families are unique builds respect for diversity.

Resolving Conflict Peacefully

- Carrying out a service learning project.

Teaching Strategies

	Cooperative Learning	Inquiry Learning	Direct Instruction
Parental survey about promoting involvement	• Group involvement • Group think-pair-share	• Problem solving	• Lecture and note taking

Generalization and Transfer	Peer Teaching	Empathy/Affective Education	General Teaching Activities/Ideas
• Reinforcement and teacher modelling of presentation	• Oral presentation	• Teachable moments	• Brainstorming, group work, poster presentation

Handout 1

Sample Parental Survey Questionnaire

1	2	3	4	5
Disagree	**Disagree Somewhat**	**Agree Somewhat**	**Agree**	**Strongly Agree**

As a parent or guardian I would be willing to

1) come into the class to talk to students directly about an assigned topic.

□ □ □ □ □

2) participate in after school fundraising activities.

□ □ □ □ □

3) attend parent–teacher interviews.

□ □ □ □ □

4) provide snacks for a class activity.

□ □ □ □ □

5) supervise on a day field trip.

□ □ □ □ □

6) supervise on an overnight field trip.

□ □ □ □ □

7) volunteer in the class for a period to assist with small groups.

□ □ □ □ □

8) patrol the hallways during lunch hour.

□ □ □ □ □

9) attend a class presentation or help judge a math fair.

□ □ □ □ □

10) invite the teacher to come for a home visit.

□ □ □ □ □

11) come to school during the day.

□ □ □ □ □

12) come to school in the evening.

□ □ □ □ □

Comments:

_____

_____

_____

Handout 2

Sample Cover letter

Dear Parent and/or Guardian;

The Grade 7 mathematics class is looking for creative ways to invite parents to school. In seeking the best way to invite parents to school we are respectfully asking you to assist by completing the brief survey compiled from questions the students posed in class. These questions are part of a mathematics unit on statistics and probability, and the students will collect the data, organize it, analyze the results and present it to the rest of the class. Please check the response that best suits your willingness or comfort level related to being invited to the school to participate in a student–initiated activity.

Your assistance is appreciated. Should you wish to make any additional comments, please feel free to include them at the bottom of the survey? Thank you for attending to this assignment and for becoming involved in our class project. We look forward to hearing from you and will let you know the results of our survey.

Mr. Lethebe
Grade 7 mathematics teacher

Handout 3

Rubric for Parent Participation Project

Presentation	4	3	2	1
Explanation (Content)	Uses correct terminology, demonstrates strong comprehension of terms and definitions	Uses correct terminology, demonstrates some understanding of terms and definitions	Adequate use of terminology, limited understanding of terms and definitions	Little or no use of terminology with no understanding of terms and definitions
Speaking skills	Clear articulation, eye contact, proper volume, polished presentation	Clear articulation but not as polished, some eye contact	Some mumbling, little eye contact, little or no expression	Inaudible, no eye contact, uneven rate, no expression
Organization	Clear sequence, all members involved, good transitions	Sequence is mostly logical, all members may not be involved, some problems with transitions	Ideas are not well connected, limited clear transitions, all members are not involved	Disjointed organization of ideas, no transitions, all members are not involved
Poster	**4**	**3**	**2**	**1**
Creativity	Originality exhibited in poster, captures audience's attention	Some originality apparent, good variety	Little originality and variety	No originality or variety
Presentation style	Easy to read, good display of information	Information is adequately displayed	Information is difficult to read	Insufficient information is displayed
Questionnaire	**4**	**3**	**2**	**1**
Creativity	Originality exhibited in poster, captures audience's attention	Some originality apparent, good variety	Little originality and variety	No originality or variety
Presentation style	Easy to read, good display of information	Information is adequately displayed	Information is difficult to read	Insufficient information is displayed
Total				