**Problem Solvers Activity Sheet**                    Name_____

## School Survey

Your student council conducted a survey to collect data about people in your school.  Based on the survey results, the council will decide what to spend money on.  Here are the results of the survey:

- Between one-fourth and one-third of the students at your school are younger than 8 years of age.
- Between one-half and two-thirds of the students are over the age of 11.
- Between one-sixth and one-fifth of the students enjoy playing soccer.
- Between two-thirds and three-fourths of the students like to play yard games painted onto the asphalt, like hopscotch and 4-square.
- The rest of the students prefer indoor games.
- There are 120 students in the school.

Answer the following questions to help the student council, based on the survey results.

1.  What are the greatest number and the least number of students in your school between the ages of eight and eleven?  Explain and show your thinking.

2.  What are the greatest and least numbers of people in your school who prefer indoor activities?  Explain and show your thinking.

3.  What are the greatest and least numbers of people who are between the ages of eight and eleven **and** who prefer indoor activities?  Explain and show your thinking.

## Un sondage à l'école

Ton conseil d'étudiants a fait un sondage à l'école.  Ils voulaient créer une banque des données.  Le conseil va décider comment dépenser leur argent, basé sur les résultants du sondage.  Voici les résultats du sondage:

- Entre un quart et un tiers d'étudiants ont moins que 8 ans.
- Entre un moitié et deux tiers d'étudiants ont plus que 11 ans.
- Entre un sixième et un cinquième d'étudiants préfèrent jouer au soccer.
- Entre deux tiers et trois quarts d'étudiants préfèrent jouer aux jeux de la récréation comme 4 coins ou à la marelle.
- Les autres étudiants préfèrent jouer aux jeux à l'intérieur.
- La population de l'école est 120 étudiants.

    Répondre aux questions suivantes en utilisant les résultats du sondage pour aider le conseil d'étudiants.

1.  Quel est le plus grand nombre possible et le plus petit nombre possible des étudiants de ton école entre les âges de 8 et 11 ans?  Explique et montre tes pensées.

2.  Quel est le plus grand nombre possible et le plus petit nombre possible des étudiants de ton école qui préfèrent les activités  à l'intérieur?  Explique et montre tes pensées.

3.  Quel est le nombre le plus grand nombre possible et le plus petit nombre possible des étudiants qui sont entre les âges de 8 et 11 ans **et** qui préfèrent les activités  à l'intérieur?
    Explique et montre tes pensées.

## School Survey

Your student council conducted a survey to collect data about people in your school.  Based on the survey results, the council will decide what to spend money on.  Here are the results of the survey:

- Between one-fourth and one-third of the students at your school are younger than 8 years of age.
- Between one-half and two-thirds of the students are over the age of 11.
- Between one-sixth and one-fifth of the students enjoy playing soccer.
- Between two-thirds and three-fourths of the students like to play yard games painted onto the asphalt, like hopscotch and 4-square.
- The rest of the students prefer indoor games.
- There are 120 students in the school.

Answer the following questions to help the student council, based on the survey results.

1.  What are the greatest number and the least number of students in your school between the ages of eight and eleven?  Explain and show your thinking.

Solving by converting fractions to whole numbers:

| Students younger than 8 | Students older than 11 |
|---|---|
| ¼ of 120 = 30 | ½ of 120 = 60 |
| 1/3 of 120 = 40 | 2/3 of 120 = 80 |

The least number of students between 8 and 11 would be 0 students;
 (total students – excluded group) or 120 – (40+80) = 0.

The greatest number of students between 8 and 11 would be 30 students;
(total students – excluded group) or 120 – (30 + 60) = 30

Therefore, there are between 0 and 30 students between the ages of eight and eleven.

2. What are the greatest and least numbers of people in your school who prefer indoor activities? Explain and show your thinking.

Solving with fractions:

2/3 (yard)+ 1/6 (soccer)= 5/6 outdoor games

6/6 (total students)– 5/6 (outdoor games)= 1/6 (indoor games)

1/6 of 120 students is 20 students in total, prefer indoor games.

¾ (yard) + 1/5 (soccer) = 19/20 (outdoor games)

20/20 (total students) – 19/20 (outdoor games) = 1/20 (indoor games)

1/20 of 120 students is 6 students in total, prefer indoor games
***between 6 and 20 students prefer indoor games.

3. What are the greatest and least numbers of people who are between the ages of eight and eleven **and** who prefer indoor activities? Explain and show your thinking.

Greatest numbers of students between 8 and 11 is 30. The greatest number of students who prefer indoor activities is 20.

Least number of students between 8 and 11 is 0. The least number of students who prefer indoor activities is 6. There are 120 students in total.

0 to 30 students

6 to 20 students

0 to 20 stu- dents

8 to 11 year olds

prefer indoors