Basketball Tournament

Several schools in Scarborough decided to have a co-ed basketball tournament for their Grade 8 boys and girls.

**PART A: (Grades 7 & 8)**
Terry Fox, David Lewis, Kennedy, John Buchan, Port Royal, Milliken, Macklin and Agnes Macphail are the schools that are part of the tournament. Each team plays each other once. How many games will be played in total?

**PART B: (Grade 8s)**
Mr. Chan wants to organize a co-ed basketball tournament for all the schools in Scarborough. There are 155 schools in Scarborough. How many games will Mr. Chan need to plan in total?
PART A

Re-state the Problem:
- 8 schools
- each school plays each other once
- FIND: Total number of games played

Make a Plan:
- I will draw a diagram with 8 schools
- I will use a line connecting two schools to represent one game that two schools will play with each other
- I will then count the total number of lines that I drew and find out how many games will be played in total
PART A Carry Out the Plan:

John Buchan  Terry Fox

Macklin  Port Royal

Milliken  Kennedy

Agnes Macphail  David Lewis
PART A  Carry Out the Plan:

Therefore, 28 games will be played.
PART A  **Look Back/Check My Answer:**

I double-checked to make sure that every school is connected to all the other schools once. I re-counted the number of lines. I am correct.
Basketball Tournament

Several schools in Scarborough decided to have a co-ed basketball tournament for their Grade 8 boys and girls.

PART B:
Mr. Chan wants to organize a co-ed basketball tournament for all the schools in Scarborough. There are 155 schools in Scarborough. How many games will Mr. Chan need to plan in total?

Re-state the Problem:
- 155 schools
- they play each other once
- FIND: Total number of games needed

Make a Plan:
- make a chart using the first five numbers, try to find a number pattern
- use number pattern to find an algebraic expression
- solve algebraic expression for n=155 (number of schools)

Carry out the Plan:
SEE NEXT PAGE
<table>
<thead>
<tr>
<th>n</th>
<th>number of teams</th>
<th>result number of games</th>
<th>n - 1</th>
<th>n * (n - 1)</th>
<th>( \frac{n \times (n - 1)}{2} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1 x (1 - 1) = 0</td>
<td>0</td>
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<tr>
<td>2</td>
<td>2</td>
<td>+1</td>
<td>1</td>
<td>2 x (2 - 1) = 2</td>
<td>1</td>
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<tr>
<td>3</td>
<td>3</td>
<td>+2</td>
<td>2</td>
<td>3 x (3 - 1) = 6</td>
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<tr>
<td>4</td>
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<td>+3</td>
<td>3</td>
<td>4 x (4 - 1) = 12</td>
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<tr>
<td>5</td>
<td>5</td>
<td>+4</td>
<td>4</td>
<td>5 x (5 - 1) = 20</td>
<td>10</td>
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<tr>
<td>n</td>
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<td>result</td>
<td>n - 1</td>
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</tr>
</tbody>
</table>
Let $n$ be the number of school teams.

If $n = 155$,

\[
\frac{n \times (n - 1)}{2} = \frac{155 \times (155 - 1)}{2} = \frac{155 \times 154}{2} = \frac{23870}{2} = 11935
\]

Therefore, Mr. Chan will need to schedule 11,935 games.