Problem

LETS PLAY BALL! (suggested for teams of two to four students)

a) In a Tigers versus Jays baseball game, the Jays scored a total of 9 runs. Use the given clues to fill in all the blanks in the score chart below.

<table>
<thead>
<tr>
<th>Inning</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tigers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Jays</td>
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<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Clues:

(i) The Jays scored the same number of runs in the second, third and sixth innings.
(ii) The Tigers scored the same number of runs in the second, fourth, and seventh innings.
(iii) The Jays scored two more runs than the Tigers scored in the third inning.
(iv) The Jays did not score in the other innings.
(v) The Tigers scored one fewer run than the Jays in the second inning.
(vi) The Tigers scored four runs in the ninth inning.
(vii) The Tigers did not score in any other inning.

b) In the second game of the series, the Jays scored 1 run in the third inning, and did not bat in the bottom (last half) of the ninth inning because they were leading. The Tigers scored a total of 7 runs. Use the given clues to fill in the number of runs scored in each inning in the score chart below, and the total for the Jays.

<table>
<thead>
<tr>
<th>Inning</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tigers</td>
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<td></td>
<td>7</td>
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<tr>
<td>Jays</td>
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<td></td>
<td></td>
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<td></td>
<td>1</td>
<td>No</td>
</tr>
</tbody>
</table>

Clues:

(i) The Jays scored the same number of runs in the first, third, and fifth innings.
(ii) The Tigers led by one run at the end of the first inning.
(iii) The Tigers scored runs in only three innings.
(iv) The Jays scored one run less than the Tigers in the second inning.
(v) The Tigers scored four more runs than the Jays in the sixth inning.
(vi) The Tigers did not score in the remaining innings.
(vii) In the eighth inning, the Jays scored the same total of runs as they had scored in the fourth and fifth innings combined.
(viii) The Jays won by one run.
Extension:

Use the given score chart and create your own problem by completing the blank clues below.

<table>
<thead>
<tr>
<th>Inning</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tigers</td>
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<td>Jays</td>
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</tr>
</tbody>
</table>

Clues:

(i) __________________________________________

(ii) __________________________________________

(iii) __________________________________________

(iv) __________________________________________

(v) __________________________________________

(vi) __________________________________________
Hints

Part a)

**Hint 1** - In which innings did the Jays score runs?

**Hint 2**  How many runs did the Jays score in each inning?

**Hint 3**  How many runs did the Tigers score in the third inning?

Part b)

**Hint 1** - What was the final score?

**Hint 2**  In which three innings did the Tigers score runs?

*Extension:*

**Hint 1** - Work backwards. Check your answers by making sure they fit the clues as you reread the question.

*Suggestion:* Have students trade their problems with other teams to check whether their clues work (i.e., determine a unique score chart).
Solution

a) | Inning | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total |
---|---|---|---|---|---|---|---|---|---|------|
Tigers | 0 | 2 | 1 | 2 | 0 | 0 | 2 | 0 | 4 | 11 |
Jays | 0 | 3 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 9 |

b) There are three possible solutions:

| Inning | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total |
---|---|---|---|---|---|---|---|---|---|------|
Tigers | 2 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 7 |
Jays | 1 | 0 | 1 | 0 | 1 | 4 | 1 | x | 8 |
or Jays | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 3 | x | 8 |
or Jays | 1 | 0 | 1 | 1 | 1 | 0 | 2 | 2 | x | 8 |

Extension:

Note to the Teacher: Students may have difficulty creating relevant clues which do not give away the answer. You may wish to do this as a class activity so that these issues arise naturally and can be discussed. One possibility would be to present them with a completed score chart, and then work backwards to create an appropriate set of clues.