LESSON 10

Pose and Solve Problems

Explore

Thirty children signed up for sports.
This table shows the sport and the number of players per team.

Sport	Number of Players
baseball	9
basketball	5
soccer	6
frisbee	8

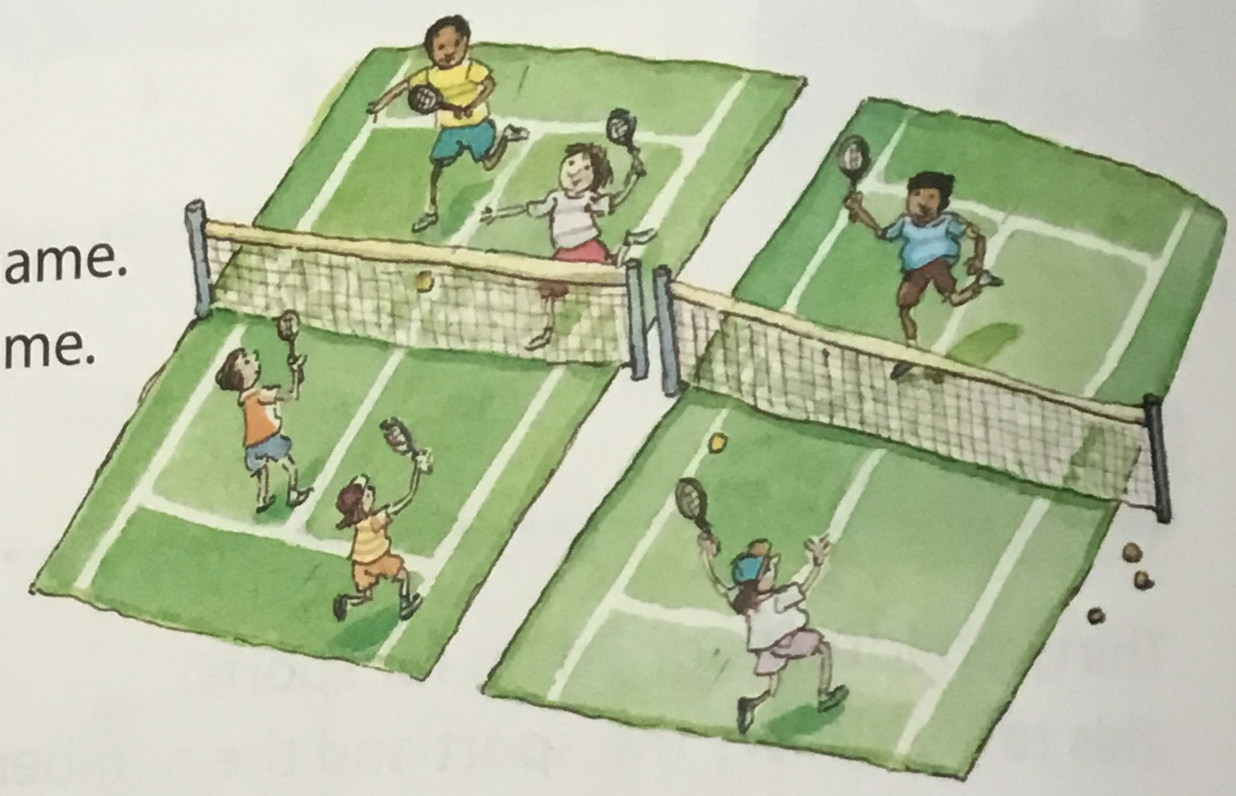
The coaches want every child to be on a team.
The children play one sport at a time.
Which sports can the coaches choose?

Solve this problem.
Use any materials you need.
Record your work.

Show *and* Share

Share your work with another pair of students.
Did you multiply or divide to solve the problem?
What strategy did you use to solve the problem?

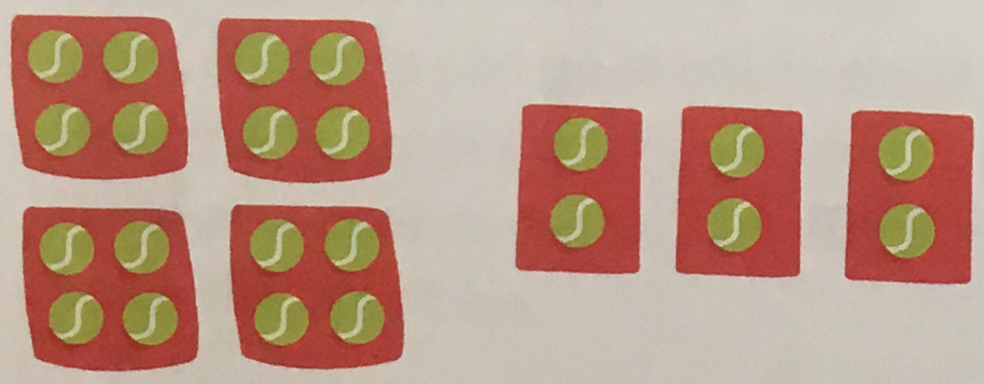
Connect



In a tennis match, players play
doubles games or singles games.
4 players are needed for a doubles game.
2 players are needed for a singles game.
There are 22 players and 7 games.
How many doubles games
and singles games are there?

Here are two ways to find out.

➤ Use a model.
Use 22 counters to show the number of players.
Put the counters in groups of 2 to show singles games.
Put the counters in groups of 4 to show doubles games.
Make sure there are 7 groups.



$4 \times 4 = 16$ $\quad$ $3 \times 2 = 6$

$16 + 6 = 22$

➤ Guess, then test.
Suppose you guess 2 doubles games and 5 singles games.
$2 \times 4 = 8$; that is 8 players playing doubles.
$5 \times 2 = 10$; that is 10 players playing singles.
Test: $8 + 10 = 18$; that is too few players.
Try another guess.
Guess 4 doubles games and 3 singles games.
$4 \times 4 = 16$; that is 16 players playing doubles.
$3 \times 2 = 6$; that is 6 players playing singles.
Test: $16 + 6 = 22$; yes, 22 is the correct number of players.

There are 4 doubles games and 3 singles games.

Practice

Use counters if they help. Show your work.

1. Forty-two students want to play volleyball.
   There are 6 players on a team.
   How many teams can there be?

2. There should be a water bottle for each player in the tournament.
   There are 8 teams. Each team has 6 players.
   How many water bottles are needed?

3. Write a story problem for each situation. Then solve the problem.
   a) There are 24 water bottles for 4 teams.
   b) There are 8 teams with 9 players on each team.

4. The coach has between 40 and 50 ribbons for the track meet.
   She has an equal number of ribbons for each of the 6 events.
   There are 5 ribbons left over.
   How many ribbons might there be for each event?

5. Thirty-five students signed up to play hockey.
   There can be 7 teams in the tournament.
   Each team should have 6 players.
   Are there enough players to make 7 teams? How do you know?

6. Use the data in the table.
   Write 3 story problems you can solve using multiplication or division.
   Solve each problem.

Sport	Players on a Team
Baseball	9
Basketball	5
Ice hockey	6

7. Write a story problem you could solve by finding 9×5.

Reflect

How do you choose a strategy to solve a story problem?
Which strategy do you use often? Explain.