Cells Teaming Up

Scene: A Team of Cells

Setting: Asia and Jalen chat between classes on their way to their lockers. Their friend Raven has an adjacent locker.

Asia: I think Coach Kim hates me.

Jalen: I seriously doubt that. I have her for P.E., and she's really cool.

Asia: She doesn't yell at you?

Jalen: No! Never.

Asia: Yesterday at basketball practice she kept shouting, "There is no 'I' in team! There is no 'I' in team!" What does that even mean, anyway? Raven was there. She can tell you.

Raven: I'll tell you exactly what it means. You're thinking of yourself instead of the team. You never pass. You never even look around for other players.

Asia: What's wrong with that? I'm trying to make a shot, the way my brother and I used to play.

Jalen: Didn't you ever play with other kids?

Asia: There were no other kids where we lived. We always just played one-on-one.

Raven: Well, you can't play that way on our team. We'll lose. And it's annoying.

Jalen: (confused) Uh... I'm not into basketball. What's the difference anyway, between playing basketball one-on-one or on a team? Aren't you just trying to throw that orange ball into the loop?

Asia & Raven: HOOP!

Asia: (eyes roll) Not loop.

Jalen: Whatever.

Raven: Team basketball is totally different than one-on-one. And it's really complex. That's why we have to practice so much. We move up and down the court in certain ways so we can all play our positions and communicate effectively. I'm the point guard. That means I'm supposed to make sure the ball gets to the right players at the right time. It'd help, Asia, if you stopped trying to do everything yourself.

Asia: OK, point guard, I get your point. I'll work on it.

Raven: I'll believe it when I see it.

Jalen: Asia, sounds to me like you're an amoeba on the court.

Asia: Excuse me?

Jalen: Remember when we studied amoebas in science class?

Raven: Oh yeah, I get where you're going! Amoebas are just single cells, right? They move around and take care of all their needs by themselves.

Jalen: Sounds like Coach Kim wants you to stop being an amoeba.

Asia: You lost me.

Jalen: Let me see how I can explain this.... Think about a plant or an animal. They have a bunch of cells, but they're not all trying to do the same thing. Here, look at my hand. Just right here you have skin cells that protect, muscle cells that move, bone cells to make a structure. If all my cells were just one kind, like skin, there's no way my hand would even work!

Raven: (laughing to self)

Asia: What's so funny?

Raven: I was just thinking about baseball.

Asia: And...?

Raven: How stupid would it be if all nine players on the team tried to do the same thing? Like covering first. They wouldn't even fit on the bag.

Jalen: (quietly) What bag? I thought it was called a base.

Asia: Or what if all the baseball players tried to play all the positions at the same time? That would be even more crazy!

Raven: Yes, Asia, and that's how you play basketball!

Asia: Oh, I see.

Raven: You need to switch from being an amoeba that does everything to being a part of a ... what did Mr. Kato call it? A multicellular organism. A team.

Jalen: (slapping a high five with Raven) Score!

Raven: Teams win when different positions work together well. You're tall. Maybe you can play center?

Asia: I'll talk to Coach Kim about that. And if all else fails, maybe I'll try another sport.

Jalen: (teasing) Oh yeah, how about golf? That's always one-on-one! And with your aim, you could get lots of goals in one.

Asia & Raven: HOLES in one, Jalen!

Jalen: (eyes roll) Sheesh, holes in one. What is it with all these weird sports terms?

Scene: A Team of Cells (continued)

A single-celled organism (like an amoeba, a yeast cell, or a paramecium) performs all the basic functions it needs to live. In organisms with a few thousand to trillions of cells, known as multicellular organisms, the cells divide up the tasks necessary for the organism to live. The different types of human cells make different contributions for the benefit of the whole organism. And just like players on a well-coached team, these highly specialized cells all receive support from each other, to make up for the things they can't do for themselves. They all work together in a complex, cooperative division.

Comprehension / Discussion Questions

Respond in writing to the questions, then compare and discuss your answers with someone else.

- The trillions of cells in a human body can be sorted into about 200 kinds. What kinds of cells does Jalen point out?
- The friends discuss how Asia is not a team player. What are the advantages of teaming up or working alone? Are team sports objectively better than individual sports?

Turn and Talk

Discuss your responses to each question below with someone else.

Other multicellular organisms (from mice to mushrooms to maple trees) have different kinds of cells. Some are more different than others. Mice have cells roughly similar to ours. But maple trees have very different kinds of cells, and their organs include things like roots and leaves.

- How are humans more similar to single-celled animals like amoebas than they are to multicellular plants? How are they more different?
- An organism has all the parts it needs to live. What happens to a single human cell when it is removed from an organism? How about a piece of organ tissue? an organ? an organ system?
- Can we say which is a better biological strategy: being single-celled or multicellular?