4.1 Energy Balance in Your Life

Grade Band: K-2

Objectives:

Students will:

- Examine and compare calories per serving and nutrient content in foods or beverages they recently consumed.
- Compare calories consumed from foods or beverages consumed to calories burned from favorite activities.

Materials:

- One Nutrition Facts panel (per student) for a food or drink they consumed in the previous week
- Post-it notes

Time Frame: 1-2 class periods

Instant Expert:

As students learned in Lesson 1.1, Energy Balance is the balance of the calories we consume through food and beverages (Energy In) with the energy we use through physical activities and daily body processes (Energy Out). In this activity, students look at Energy Balance as it relates to their own lives.

For the Energy In part of the lesson, students examine calories per serving and nutrients from foods or beverages they consumed in the previous week. As students examine their Nutrition Facts panels, they may realize that some foods and beverages give them a lot of energy but not as many nutrients. Or other foods don't provide as much energy but give them a significant percentage of the nutrients they need. This can lead to a discussion about the concept of balance in general. There are no good or bad foods! All foods can fit into a sensible, balanced diet. Knowing how much energy and what nutrients foods and beverages provide can help us make choices that lead to a sensible, balanced diet that's right for us!

For the Energy Out part of the activity, students are given a list of 5 activities and the number of calories burned when a 65- pound person does that activity for 30 minutes. If you want the class to research additional activities, you can go online to a calorie calculator. The one that is recommended is the MyPlate tracker at http://www.myplatetracker.gov/. While registration is required to have full and ongoing use of the Tracker, students can bypass the registration requirement by clicking, "Check It Out – no registration" at the lower left corner of the site. Students will need to enter their age, gender, height, and weight to get accurate calculations but they do not need to register. Another calorie burn calculator can be found at the Discovery Health site at **health.discovery.com/...**/cholesterol/activity/activity.html.

On this site, students need to enter their weight and the duration of the activity to get accurate calculations. It is important to note that most calorie burning calculators will ask for weight in order to get an accurate calculation. If you have students who are sensitive about their weight, you may want to ask all students to enter the same average weight. For example, they could all enter 65 pounds rather than entering their own weight.

Procedure:

Note: Before the lesson, ask each student to bring in a Nutrition Facts panel from a food or beverage they ate or drank in the last week. If possible, have them bring the container or box the food came in.

1. Ask student volunteers to review definitions for the following terms:
   - Energy In
   - Energy Out
   - Energy Balance

2. Ask each student to share what food or beverage they brought in. Have them share the food group and whether they ate the food/drink for breakfast, lunch, dinner, or snack.

3. Direct students to the "calories" section of their food or beverages' Nutrition Facts Panel. Remind students that calories in foods and beverages tell us how much energy we can get when we eat or drink it. Ask them to identify the number of calories per serving in their food or beverage. Write down this number on a Post It note.

4. In addition to energy from calories, many foods also give us nutrients that help us grow and contribute to our health. Direct students to read the Nutrition Facts Panel to see if their item also has:

   - Vitamin A
   - Vitamin C
   - Iron
   - Calcium
   - Fiber

5. Remind students that, even if their food/beverage does not have these nutrients, it can still be part of a balanced, sensible diet!

6. Ask students if they remember what is on the other side of the Energy Balance Scale (Energy Out). List the names of the activities below on the board. Poll students to see which ones they like to do. Which one do they think takes the most energy? Write the numbers listed beside each activity. Explain to students that this number shows how many calories someone their age would use when doing this activity for 30 minutes (the length of most television shows!)

- Jumping rope- 178
- Soccer- 119
- Riding a bike- 99
- Dancing- 69
- Arts and Crafts- 20

7. Which is the highest energy activity? The lowest? Were they surprised?

8. Remind students that we want to try to balance our Energy In (from foods and beverages) with our Energy Out (from activities). Refer back to the Post It note with the number of calories they consumed on it. This is their Energy In. Challenge each student to place his or her Energy In Post It note next to the activity (and related calories burned) that comes closest to the number on their Post It. For example, if they brought in cheese crackers that have 120 calories per serving, they would place their Post It Note next to "soccer" since they would burn 119 calories by playing soccer for 30 minutes.

9. After all Notes have been placed, have students use tally marks or graphing to show a mathematical representation of their "scale." Which activity most closely balances the foods the class selected? How can students use this information as they make their diet and activity choices?

Extensions:

- If students are able, add combinations of foods/calories together and have them repeat the game.

Family Connection:

Sometimes we have family dinners, vacations or events where we consume more Energy In than we typically do. Have students talk with family members about how they can balance out these high Energy In days with fun family-friendly Energy Out activities!

Community Connection:

Have students research community activities that relate to Energy In and Energy Out. These could include ethnic celebrations, festivals, races, community facilities, etc. Challenge students to come up with ideas for combining Energy In and Energy Out community events to help residents see the importance of balancing their energy.

Standards Connections:

National Health Education Standards

- Standard 4: Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.

- Standard 5: Students will demonstrate the ability to use decision-making skills to enhance health.

National Reading/Language Arts Standards:

- Standard 5: Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- Standard 12: Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

National Physical Education Standards

- Standard 3: Participates regularly in physical activity.
- Standard 4: Achieves and maintains a health-enhancing level of physical fitness.
- Standard 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

National Science Standards

- Life Science
- Science in Personal and Social Perspectives

4.2 I Can Balance. You Can Balance.

Grade Band: K-2

Objectives:

Students will:

- Understand the meaning of the word, “obstacle.”
- Strategize about how obstacles can be overcome.
- Design strategies to help kids their age overcome obstacles to maintaining Energy Balance.

Materials:

Obstacles (cones, milk crates, hurdles)

Sticky Notes

Stopwatch

Time Frame: 1-2 class periods

Instant Expert:
Energy Balance is a balance of the calories we consume from food and beverages with the calories we burn through physical activity and basic body processes like sleeping, breathing, building new red and white blood cells, thinking, etc. The energy used in these basic body processes is known as our Basal Metabolic Rate (BMR). It’s easiest to explain to children that, in addition to the physical activity they do, they also burn calories by doing things like breathing, thinking and even sleeping. In other words, everything we do requires energy.

Maintaining Energy Balance can contribute to an active, healthy lifestyle. Not maintaining Energy Balance can lead to health problems. If we have a lot more Energy In over time than Energy Out, consequences include weight gain (unburned calories are converted to fat) and the possibility of becoming overweight or obese (with related problems like heart disease, Type 2 diabetes, self-esteem issues, etc). If we have a lot more Energy Out over time than Energy In, that can lead to unhealthy weight loss, sickness, lack of energy, and problems with growth and tissue formation (especially for children).

Over the past three decades, childhood obesity rates in America have tripled, and today, nearly one in three children in America are overweight or obese. One third of all children born in 2000 or later will suffer from diabetes at some point in their lives; many others will face chronic obesity-related health problems like heart disease, high blood pressure, cancer, and asthma. In addition, studies have shown

that obese children and teens are more likely to become obese as adults. Some experts believe that if obesity among children continues to increase, our current generation of children will become the first in American history to live shorter lives than their parents.

There are many contributing factors to the high rate of childhood obesity. Some reasons are related to diet and activity choices. These include:

- The sedentary lifestyle of many children. A typical American youth spends approximately three hours a day watching TV, using the computer or playing video games. In addition to less physical activity, this sedentary lifestyle may also contribute to increased energy consumption through excessive snacking and eating meals in front of the TV.
- More time spent in cars and less time walking.
- Less physical activity for young people including less time in physical education classes. Almost 1 in 4 children does not participate in any free time physical activity.
- Increased portion sizes for food and beverages.

Since all children grow at different rates and those in your class likely will be different weights, you will want to be sensitive to discussions about being overweight or obese. The most important takeaway for students is the importance of balancing food and beverage calories (Energy In) with at least 60 minutes a day of activity (Energy Out).

Procedure:

Note: Before students enter the room, create an obstacle course with a starting line, a finish line and three obstacles that must be overcome. Examples include a crate, a cone, and a hurdle.

1. Ask students if they are familiar with an obstacle course. If so, ask them to share what they know. Then tell them that today's lesson will begin with them doing an obstacle course. Have students form a line at the starting point of the course.

2. Tell them that, one at a time, they will go as fast as they can from the starting line to the finish line. Along the way, they must get by the obstacles on the course. Example: Have students walk around the cone, jump over the milk crate, and crawl under the hurdle. You may want to demonstrate. One at a time, have each student go through the course, using the stopwatch to time them. Tell them their time or write it on a Post It Note.

3. Then have students repeat the course, but this time remove all the obstacles. Have students predict what will happen. Once again, time each student and tell them or write down their time. Did they go faster or slower when the obstacles were removed? Students likely will go faster on the second round. Ask students why they think they went faster.

4. Share that there are many times we have obstacles that we can't see that prevent us from doing something we should. Examples include not doing our homework because we forgot to bring home our paper, not taking a bath or shower because the water is cold, or not eating any vegetables because we don't like things that are green! Ask students how the obstacles could be removed in each one of those examples (borrow a friend's paper, wait until the water gets warm, or eat a different colored vegetable!)

5. Tell students that some people might even have obstacles about Energy Balance that need to be removed! (You may need to remind students what Energy Balance is using information from Instant Expert). Write these examples on the board:
    a. I don't like to be outside so I watch TV all day every day.
    b. I get up too late so I never have time to eat breakfast.
    c. I don't really like to play on a team so I am not active.
    d. When I'm bored, I love to eat a lot so I often eat too many servings of my favorite foods.

6. These sentences all share an obstacle for why someone is having trouble balancing their energy. Ask students to identify the obstacle in each one of the examples. (Don't like the outside. Get up late. Don't like team sports. Boredom.)

7. Choose one of the examples and ask two student volunteers to role play a discussion between two friends, one of whom is sharing the obstacle and the other who is sharing advice for removing the obstacle.

8. Finally, ask each student to select one of the other examples (or one of their own) that includes an obstacle someone their age might have for maintaining Energy Balance. Challenge them to role play a discussion with a partner or write a letter to persuade someone to overcome this obstacle. Have students act out their role play or read the letters aloud.

9. Finally have each student share an obstacle from their own lives that may prevent them from maintaining Energy Balance and one idea that could help them overcome it!

Extensions:

- Have students cut out photographs or stories from the newspaper, news magazines, or Internet news sites of images that represent Energy In or Energy Out. It could be pictures of foods,

pictures of people eating, pictures of people doing something physically active, etc. Then have students create a bulletin board with these photographs that illustrates Energy Balance.

Family Connection:
Have students talk with family members about whether they think they balance their Energy In with their Energy Out and, if not, what advice they could give each other about how to be more balanced?

Community Connections
Have students invite a real physician to the class to talk about the importance of maintaining Energy Balance and the short- and long-term consequences of being imbalanced.

Standards Connections:

National Standards for Physical Education

- Standard 3: Participates regularly in physical activity.
- Standard 4: Achieves and maintains a health-enhancing level of physical fitness.
- Standard 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

National Health Education Standards

- Standard 2: Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.
- Standard 4: Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.
- Standard 5: Students will demonstrate the ability to use decision-making skills to enhance health.
- Standard 6: Students will demonstrate the ability to use goal-setting skills to enhance health.

National Reading/Language Arts Standards:

- Standard 5: Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- Standard 12: Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

4.3 How Balanced Are You?

Grade Band: K-2

Objectives:

Students will:

- Brainstorm ideas for overcoming potential Energy Balance challenges.
- Identify their Energy In and Energy Out for one day.
- Analyze their Energy In and Energy Out and identify manageable goals that can help them maintain Energy Balance.

Materials:

- Beach Ball
- "Am I Balanced?" student activity sheet- one per student
- Art materials
- Cameras (optional)

Time Frame: 1-2 class periods for content and analysis, 1 day for tracking

Instant Expert:

In this lesson, students are challenged to track their Energy In and Energy Out for one day. This could be challenging for some students so it may be important to enlist the help of parents and spend time during class working on it.

As has been outlined in earlier lessons, it is not important that we maintain Energy Balance every day. Instead it should be maintained over time. Therefore this one day Snapshot does not give students an accurate picture of their overall Energy Balance, but it does give them a snapshot of one day in their lives and helps them begin to think about balancing what they eat with how they move! This Tracker should be used as a tool to help students see where they can improve and to think about healthy ways to make those improvements.

Procedure:

1. Tell students that you are going to play a game of Energy Balance catch! Toss the beach ball in the air to a student. When that student catches the ball, challenge him or her to share one food (or beverage) they ate the day before to get Energy In and one activity they did the day before to get Energy Out. Then ask that student to toss the ball to another student who has not yet answered, and repeat. Continue tossing the ball until each student has had an opportunity to share.

2. Ask students to share with a partner one reason why Energy Balance is good for their health. Share reasons with the group.

3. Remind students that their energy doesn't have to balance perfectly every day but that it should balance over time. They probably eat about the same number of calories and do the same level of physical activity on many days but some days they may do more of one than another. Divide students into two groups. One group will be Energy In. The other group will be Energy Out.

4. Share the following examples with students. If the Energy In is greater in the example, have the Energy In group stand up. If the Energy Out is greater in the example, have the Energy Out group stand up.

    a. You are going to a birthday party where you will eat lots of yummy foods. You will probably eat more than you usually do. What will increase: Energy In or Energy Out? (Energy In). That's just fine, but what could you do to make sure your Energy Out increases too? (Do more physical activity).

    b. You are going to swim in a big swim meet this weekend. You will be swimming lots of races to help your team win. You will swim more than you usually do. Swimming takes lots of energy! What will increase: Energy In or Energy Out? That's exciting, but what could you do to make sure your Energy In increases too? (Make sure you eat enough to get the energy you need).

    c. You love to play outside with your friends every day. You play tag, jump rope and ride your bike. Yesterday you sprained your ankle and you won't be able to do any of these activities for a while. What will increase: Energy In or Energy Out? Energy In. You are sad, but what could you to balance your energy (Find other activities to increase Energy Out).

5. Ask students if any of these situations have ever happened to them. Encourage them to share other situations from their own lives when their Energy In or Energy Out increased. What did they do (or what could they have done) to balance their energy.

6. Ask students to imagine they could take a picture of something in their lives that shows them balancing their energy. What snapshot might they take? Remind students that it is important every day to eat a sensible, balanced diet with foods from every food group and by physically active for at least 60 minutes every day.

7. Tell students they are going to take a snapshot of their Energy Balance without a camera! Distribute the "Am I Balanced?" student activity sheet to each student. Tell students that, for one day, they are going to write down or draw everything they eat and drink (including snacks) and every activity they do. Their Energy In (foods and beverages) will go on the plate and their Energy Out (activities) will go on the sneaker. Encourage older students to write specific times by their activities so they can see if they were active for 60 minutes or more.

8. Have them return to class with their activity sheet the following day.

9. Working in partners or groups, have students review what they tracked. What did they eat or drink? What activities did they do? What did they do that deserves a big thumbs up?! What might they want to do more or less of tomorrow? How could this information help them?

Extension:

- Have students write a story called, "A Day in the Life of My Energy Balance" that explains what they learned from their plate and sneaker!

Family Connection:
Have students challenge family members to track their Energy In and Energy Out during the same one-day period. Encourage all family members to work together to identify ways they can help the family stay balanced!

Community Connection:
Maintaining Energy Balance can help people of all ages stay healthy! Have students make posters that encourage those in the community to balance Energy In with Energy Out and see if they can be displayed at the local grocery store or library.

Standards Connections:

National Health Education Standards

- Standard 4: Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.
- Standard 5: Students will demonstrate the ability to use decision-making skills to enhance health.

National Reading/Language Arts Standards:

- Standard 5: Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- Standard 12: Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

National Physical Education Standards

- Standard 3: Participates regularly in physical activity.
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National Science Standards

- Life Science
- Science in Personal and Social Perspective

4.4 Your Energy Balance Goal!

Grade Band: K-2

Objectives:

Students will:

- Write an "Energy Balance" goal that they will track over the next four weeks.
- Develop goal-setting skills to improve their ongoing Energy Balance.

Materials:

- Several soft balls and goals (or masking tape/other materials to simulate goals)
- Completed "Am I Balanced?" activity sheet from Lesson 4.3
- "My Energy Balance Goal" student activity sheet – one for each student
- Flip chart

Time Frame: 1-2 class periods for content and analysis, 4 weeks to complete and measure goal

Instant Expert:

Throughout the activities in Energy Balance 101, students have learned many lessons about how balancing their Energy In and Energy Out can contribute to their healthy lifestyle. They have also learned

- What Energy Balance is and why it's important
- How to make decisions that contribute to their active, healthy lifestyle
- How calories from food and beverages give them energy
- How some foods and beverages give them added nutrients to help them grow and contribute to their good health
- How to make diet choices to meet their individual energy and nutrition needs
- How their activities and basic body processes use their energy
- How calories are burned
- The benefits of physical activity
- How to make physical activity choices that meet their individual needs

- How to make choices that contribute to Energy Balance
- How to overcome obstacles to balancing their Energy
- About their own Energy in and Energy Out and areas where they could improve

In this lesson, students will combine all they've learned to write and create a plan for a personal Energy Balance-related goal. To help them generate ideas, they will reflect on the "Am I Balanced?" activity sheets they completed in Lesson 4.3. If students did not complete that Snapshot, you may want them to spend time reflecting upon their own Energy In and Energy Out patterns.

Depending on the age of your students you may want to introduce the "SMART" goal setting strategy.

The lesson plan suggests a four-week time period for students to track and meet their goal. That time period is flexible, and teachers are encouraged to set a time period that meets their individual class needs.

Procedure:

1. Before students enter the room, set up several goals around the room (this can be real goals or goals made by masking tape or other materials). Divide students into groups and direct each group to stand by one of the goals. Give each group a ball. Direct students to do the following:
    a. Point to the goal they are trying to reach.
    b. Have each student think of a different plan for getting the ball in the goal.
    c. One by one, have each student try to reach the goal using their idea. Encourage them to cheer for each other.
    d. Repeat the exercise, this time with another student trying to prevent their ball from going in the goal.
    e. Finally, remove the goalie and have each student try again.

2. Have students come back together and discuss:
    a. Did everyone know what the goal was?
    b. Did each group member come up with a different idea for reaching the goal? Did different ideas reach the same objective? Can there be more than one way to reach the same goal?
    c. Was it easy to reach the goal the first time you tried? Why or why not?
    d. Was it harder when you had an obstacle trying to stop you? Did you change your strategy when you had an obstacle? Was it easier when the obstacle was removed?

3. Ask students what other kinds of goals there are, other than the ones that a ball is kicked into! Have they ever set any goals for themselves? If so, have them share examples. Record them on the board or a flip chart. Then relate these goals to the exercise they just did:

   a. Did they reach their goal the first time? If so, how? If not, how did they change their plan?
   b. Could there have been more than one way to reach their goal?
   c. Was there an obstacle or problem that made it hard to reach their goal?
   d. If so, was it easier once that was removed?

4. Share with students that an important part of keeping an active, healthy way of life is to set goals (some small and some bigger) for themselves and to create a plan for reaching those goals. Just like the exercise at the beginning, they may not always reach their goal; there are often many different ways to reach the same goal; sometimes hard things stand in the way of us reaching our goals and we can try to remove them or change our plan; it's helpful to have people encouraging us; and finally, when we reach our goal it's fun to celebrate!

5. We should set goals that are important to us, that we can really achieve, and that are specific enough to help guide us.

6. Read students the following sample goals aloud and ask if there are ways they could be improved:
   a. I will eat more vegetables because my Mom says I have to but I don't really want to. (Not important to the goal setter. Choose something that you really care about!)
   b. Someday soon I will exercise more. (Not specific enough. Need to say what you will do and when you will do it by!)
   c. I will never eat anything that has any sugar in it. (Wow. This would be really hard and you would miss out on some yummy foods! Try to avoid "never" and "always" in your goal!

7. Discuss with students how the goals above could be rewritten.

8. Ask students to get out the "Am I Balanced?" activity sheet they completed in Lesson 4.3. (If students did not complete a Snapshot, have them track what they eat and their activity for a day or write down their typical diet and activity patterns.)

9. Explain that they will use this information and what they learned about goal-setting to write a goal related to Energy Balance. You may want to brainstorm a list of goals that would be appropriate. For example:
   a. I will try one new activity that gets me out of breath each week.
   b. I will be active for 60 minutes at least 5 days a week.
   c. One day each week, I will give up watching TV and do something that gets me out of breath instead.
   d. I will eat breakfast every day.
   e. I will eat at least one food each day that has calcium, fiber, iron, Vitamin A or Vitamin C.
   f. I will eat foods from every food group each day.

10. Distribute and review the "My Energy Balance Goal" student activity sheet. Have students work in pairs to complete the sheet. Remind them that there is more than one way to reach a goal and that sometimes we have to change our plan if something isn't working. If they are having trouble setting their own goals, have them share ideas with each other or imagine themselves writing a goal for someone else their age.

11. Once all students have finished, encourage volunteers to share their goals. If time permits, have all students present.

12. You may want to check progress with students each week to see how they are doing. This can be done in partners, groups, or at a meeting with you. At the end of four weeks, have students share their progress and celebrate their achievements!

Extensions:

- Host an Energy Balance Fair or presentation for other students and family members.

Family Connection:

Ask students to challenge family members to set and track an Energy Balance-related goal. It makes it easier to reach goals with support from family members and more fun to celebrate if everyone has made improvements!

Community Connection:
The Community section of the Energy Balance 101 Website (www.energybalance101.com) is filled with great organizations and resources to help kids reach their energy balance goals!

Standards Connections:

National Health Education Standards

- Standard 4: Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.
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