FOR YOUTH DEVELOPMENT®
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

SOCCER KICKS

Component: Physical Activity

Time: 60-75 minutes (can be split over 2 sessions)

Goal: To practice making and testing predictions while improving soccer skills.

Materials:

- A soccer ball
- Long measuring tape (30 or 100 meters)
- Masking tape
- Outdoor space
- Cones or markers
- Notebook

Procedure:

1. Engage and Connect—5 minutes: Ask:

- How many of you have ever played soccer?
- What do you think determines how far someone can kick a soccer ball?
- Do you think the size of someone's legs affects how far they can kick the ball? How so?

2. Introduction and Set Up—5 minutes: Say something like:

- Let's investigate this question: If your legs are bigger than your friend's, can you always kick the ball farther?

Ask everyone to make a prediction and to give a reason for their answer. Invite many different people to speak up. Encourage them to give full explanations for their predictions. Then say something like:

- You have your ideas about this but we need to gather some evidence. How could we design an experiment to determine if the size of someone's legs affects how far they can kick the ball?

3. Designing the Test—15-20 minutes: Explain that when scientists conduct tests they have to be very careful and very precise. Otherwise people will challenge their research design. Ask the group to think carefully about how to test their design so their results will be valid (well-founded, accurate, able to be accepted). Ask questions to encourage their thinking:

- What information would you need to test your hypothesis (or prediction)?

- What measurements would you want to take to determine how big someone's leg is? If measuring length, how much of the leg do you need to measure: from knee to heel? From hip to heel? Why?
- Would you also measure the circumference (the distance around) of the leg? In what area—calf or thigh? Why?
- How important is it to measure the exact same part of the leg on each person?
- How will you measure the distance of each kick? (Using what tools and what units of measurement?)
- What materials do you need to do the test? (Offer the materials you have).
- How will you carefully record the data you've gathered?

Encourage youth to identify the different jobs that need to be done to carry out the experiment:

- Leader: Oversees and coordinates the whole experiment to make sure all jobs are getting done.
- Leg Measurers: Carefully take each person's leg measurements (in the exact same way) before they kick the soccer ball.
- Spotters: Watch carefully to se where the ball first lands and then mark that place with a cone or flag.
- Distance Measurers: Measure the distance from kick-off spot to landing spot (where it lands, not where it rolls) for each kick.
- Recorders: Carefully record the data for each kicker.
- Calculators: Figure out the average kicking distance for each kicker. (Ask how you calculate averages. Add all the kicking distances and divide by the number of kicks.)

Encourage the group to take all the leg measurements before they begin kicking.

4. The Test—20-25 minutes: Before the test begins, introduce some guidelines for the kicking. Say something like:

- You've done a great job designing your experiment.
- In the spirit of fairness, I have a few guidelines for the kicking:
    - Everyone must try to kick the ball into the air and not along the ground.
    - Everyone will get at least 5 kicks.
    - We'll ignore any balls that don't go into the air.
    - Everyone will stand directly behind the ball and take one step forward before kicking. If the person is right-footed, they will take one step forward with the left foot, then kick with the right.

Have the group start the kicking, spotting, measuring, and recording. Remind them that it's critical that all the data gets carefully recorded in the notebook. Step in only if issues come up around your guidelines for the kicking.

5. Data and Analysis—20-25 minutes: Ask the group to analyze the data they've collected. Have them make two different graphs of the data:

- Average kick distance as a function of the length of people's legs (kick distance on left in feet; leg length on bottom in inches)
- Average kick distance as a function of the circumference of people's legs (kick distance on left in feet; leg circumference on bottom in inches)

You can make the graphs together in the large group on chart paper or have participants work in small groups to produce the graphs.

Reflection: Once the data is graphed, ask the group to reach some conclusions:

- What did the evidence show?
- Did leg length affect kicking distance in our sample?
- Did leg circumference affect kicking distance?
- How accurate were your predictions?
- What did you discover in this activity?
- What other factors could have influenced kicking distance? (A person's overall body mass and strength, previous soccer skills and kicking technique might influence how far they kick. Explain that scientists and researchers have to think about and identify any problems with their research or other factors that might contribute to their findings.)

SOURCE: Adapted from an activity, Soccer Kicks, on the www.howtosmile.org website, developed by Twin Cities Public TV/SciGirls/PBS Kids
SKILL: Measurement – distances

Noticing Game

Children are naturally self-centered. It's as if mirrors surround them. They can only see and think of themselves. To become caring, sensitive people, they must learn to see and think of other's feelings and needs. To help children become more aware of things outside of him/herself, play the Noticing Game.

What is needed: nothing

How to play:

1. First of all, this is not an active game.
2. Play this game spontaneously and simultaneously for all players.
3. Introduce the game and how it is played in advance, so that when you play, children will know the rules and what to expect.
4. During snack or some other appropriate time, use an established cue to get the children's attention and indicate that the game of Noticing Game has begun.
5. At the signal, children should all suddenly close their eyes.
6. Now randomly select children to give you information about the details of their physical environment. You can ask them questions or tell them to describe certain things.
7. Individualize your questions/commands. Don't make them too hard, and try very hard not to make anyone feel humiliated. The idea here is to test the memory and observation skills. How aware are we of our environments? Did we ever take the time to notice what our friends are wearing, who we're sitting by, how the physical environment is arranged?

8. You can also call on a child or two to help out with the questioning aspect of the game. They will have to open their eyes, obviously, in order to do this.
9. Play the game several times over the week. Make sure that you play it very spontaneously so the children do not “cram” observations. Have fun!

Compliment Tag

Instructions:

1. One child is the tagger, and everyone else scatters about the room.
2. When a child is tagged, he/she must sit down on the floor, and he/she is out.
3. Another child may help a child whom has been tagged to re-enter the game by giving him/her a compliment while helping him/her up. For example, “You have beautiful eyes.” or, “You’re very smart.” and so on.
4. When everyone has been tagged and the tagger is the only person left, he/she chooses another child to be the tagger. Feel free to have more than one tagger at a time.

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EXPLORING CAREERS: WHAT KIND OF ENGINEER AM I?

Component: College/Career Readiness **Time:** 30-45 minutes

Goal: To identify 6 different types of engineers, the roles of their jobs, and to increase awareness of and interest in different engineering careers.

Materials:

- Facilitator Resource, Engineer Descriptions
- Handout, Who am I?

Preparation:

1. Visit the engineergirl.org website: the source of the information in this activity. There is a lot more great information for you and the youth in your program: interviews with diverse role models, scholarship information, etc.
2. Make posters of the Engineering Descriptions and post them on the wall where they are visible to all.
3. Make a copy of the handout and cut the statements into strips.

Procedure:

1. Engage and Connect—5 minutes: Ask:

- How many of you know someone who works as an engineer?
- Have you seen an engineer or other scientist at work in a movie or on TV?
- What kinds of things do engineers do?

2. Introduction and Set Up—5 minutes: Give the following basic information about engineers:

- Engineers design. They create. They explore and solve problems. They innovate – they introduce new methods, ideas, and products.
- Engineers receive education and training in many different fields. They work in many different environments. Engineers create products used in our everyday lives, and rovers that land on Mars.

3. Fun Facts—5 minutes: Ask volunteers to read the following fun facts about engineers and engineering projects.

The Bionic Arm

A team of five biomedical engineers in Edinburgh, Scotland created the first working bionic arm in 1993. The Bionic Arm also called the Edinburgh Modular Arm System, is packed with microchips, position-control circuits, miniature motors, gears, and pulleys. It rotates at the shoulder, bends at the elbow, rotates and twists at the wrist, and can grip using artificial fingers. The pulses then control each movement of the "new" arm.

The Ferris Wheel

Did you know the Ferris Wheel is considered an engineering wonder? The Ferris Wheel was designed by George W. Ferris in 1893. It was designed to be the landmark of the World's Fair in Chicago in 1893. The wheel is supported by two 140-foot steel towers. The towers are connected by a 45-foot axle, making the axle the largest single piece of forged steel made at that time.

The Hoover Dam

The Hoover Dam is one of the tallest concrete dams ever built and it created one of the largest manmade lakes in the United States. At 726.4 feet tall, it took 200 civil engineers from several consulting firms and the Bureau of Reclamation to design the dam. It has 3,125,000 cubic yards of concrete and weighs more than 6.6 million tons! Construction of the dam, power plant, and related works took five years to build and was finished two years ahead of schedule. The reservoir created can hold enough water to cover the entire state of Pennsylvania with water one foot deep.

4. Discuss reactions be asking:

- How many of you have ever been on a Ferris Wheel? Ever seen a bionic arm? Ever been to (or seen a picture of) the Hoover Dam in Nevada?
- What do you think it would have been like to work on one of those projects?

5. Who Am I Activity—10 minutes: Review the 6 different types of engineers you'll be exploring in this activity. Have participants come close to the posters and read the descriptions together. Engage in dialogue to make sure the youth understand the kinds of things these engineers might be doing and the distinctions between them.
6. Give these instructions:

- I need 6 volunteers to play roles of engineers.
- Each of you will read a description of what you do as an engineer.
- The group will need to identify what kind of engineer you are.

Select the 6 volunteers to play the roles of the 6 volunteers. Give them a few minutes to read what they have to say silently. Then have the first volunteer read their description of what they do aloud. Ask who knows which type of engineer this is: civil, chemical, biomedical, software, environmental, and mechanical. Once the correct answer is identified, continue using the same process for the remaining engineers.

7. Reflection—5-10 minutes: Lead a brief period of reflection with the following questions:

- What did you learn about engineers today?
- What are some of the different kinds of work you might do as an engineer?
- What are some things that all engineers do regardless of their specific area? (Design, explore, create new ways of doing things, solve problems)
- What kind of education and training do you think you need to become an engineer?

Reflection: Deeper, open-ended questions.

SOURCE: Pam Garza, Y-USA
SKILL: College and Career Readiness

Peace (AKA Horse)

Playing group games requires sportsmanship. Keeping the peace is a key sportsmanship skill. Instead of calling the game Horse, call it Peace for this theme!

What you'll need: Basketball, hoop

How to play:

1. Establish the rules beforehand and stick to them. Peace (AKA Horse) has many variations on the base game. Some give exception shots so that people can get back in the game when they lose. Sometimes physical limits are imposed; for example, eliminating the dunk because not all players can complete that maneuver.
2. Create an order for the players. This can be done by alphabetical order or by shooting for the order of play.
3. Call the shot. The player shooting must verbally call out what shot they are going to take before the shot. The exception is if the shooter is not going to use any props or make any special moves.
4. Shoot the first shot. The first player takes a shot within the established rules. If the shot is made, the next player has to make the same shot or they are assigned the letter P.
5. Shoot the next shot. If the second player makes the same exact shot then it falls to the next player and so on until the original shooter is up to shoot. At that point the original shooter takes another shot.
6. Reslot the order. If a person shooting first misses then they proceed to the back and the player next in line becomes the leader and gets to decide on the shot taken. If that person misses, then control proceeds until it returns back to the original shooter.

7. Assign the letters. As each shooter misses he earns the next letter in the word Peace. When a player reaches P-E-A-C-E she is out. As mentioned earlier, some players of the game allow a bonus shot or two that, if made, allow the shooter to stay in the game and eliminate a letter. This is continued until there is only one player left. That player is the winner.

Website source:

http://www.ehow.com/how_2060390_play-horse-basketball.html