

WHAT ARE THE ODDS?

AGE RANGE

10–13

OVERVIEW

Students will learn about the importance of physical activity in reducing their risk of developing noncommunicable diseases (NCDs). In groups, they will participate in a card game that prompts them to do short bursts of physical activity while they also collect data on the odds a certain suit will appear. After they have completed the card game, they will calculate the ratios. Depending on the suit most likely to appear for their group, they will complete a summative task reflecting on what they've learned regarding the relationship between physical activity and NCDs.



TIMING

45–60 minutes

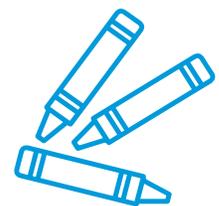
OBJECTIVES

Students will

- Identify the role physical activity plays in reducing the risk of developing NCDs
- Collect data and calculate ratios
- Participate in physical activity

MATERIALS NEEDED

- Pencils, one per student
- **Activity Recommendations** student handout, one per student*
- Deck of playing cards, one per group*
- **Physical Activity Card Game** student handout, one per group*
- **Physical Activity Cards** student handout printed on card stock, one per group cut into cards*
- **Card Suit Data Collection** student handout, one half sheet per group*
- **What Are the Odds?** student handout, one half sheet per group*
- **What Are the Odds?** answer key, one for educator



**Note:* There are facilitation options below if the students are in a virtual situation. Handouts can be provided electronically to be printed at home or as an editable Microsoft Word template to be submitted via email, learning management system, or as a live/shared document.

EDUCATOR PREPARATION

- Before each session, make sure students have access to the required handouts. If students are learning virtually, they can print them out at home or utilize shared online documents. You can also make them available through your chosen virtual learning platform or learning management system.
- If an activity calls for working with a partner or group, students learning virtually can share their answers out loud or write their definitions down to reference later, add to a live/shared document, or comment in a chat box. Alternatively, you can prepare breakout rooms in your learning management system prior to your session.
 - Platforms like [Zoom](#) allow you to pre-assign participants to breakout rooms. [Google Meet](#) will randomly distribute participants.



PROCEDURE

Engage

1. For approximately **4–5 minutes**, engage students in the upcoming lesson by asking one or more discussion questions similar to those below.
 - What are some things we can do to stay healthy?
 - What is the most creative way you've gotten exercise?
 - Do you know how much exercise you are *supposed* to get?

VIRTUAL FACILITATION OPTIONS

- If students are on video and/or able to use microphones, allow them to share their answers out loud.
- If students are not using video or microphones, encourage students to write their answers down to reference later or use the chat feature.

Learn

2. Explain to students that a noncommunicable disease or NCD is any disease that is not contagious and cannot be spread to others, unlike the flu. Some examples of NCDs are type 2 diabetes and heart disease.
3. Clarify that an NCD is often the result of a lifestyle choice, such as lack of physical activity or not making the most nutritional food choices possible. In fact, experts believe that if people got as much activity as they should, 6%–10% of NCDs could be eliminated around the world.³ And since NCDs account for over 41 million deaths worldwide each year,⁴ that means that 2.5–4.1 million lives could be saved if we all got enough exercise!

³ <https://bit.ly/2PnBRqx>

⁴ <https://bit.ly/3vZtvGs>

4. Instruct the students to examine the **Activity Recommendations** handout.
5. Invite 3–4 volunteers to share their thoughts or immediate reactions. If students are reluctant to volunteer, ask how many students were already familiar with these recommendations. Ask for a raise of hands whether they think it is easy or difficult to maintain these recommendations in their daily life.

VIRTUAL FACILITATION OPTIONS

- If students are in a virtual situation, consider using the poll feature.



Challenge

6. Divide students into groups of five. Each group should have a set of **Physical Activity Cards**, a **Physical Activity Card Game** handout, and a **Card Suit Data Collection** handout.
7. To play the game, students will take turns flipping the top card on the stack to see which suit it is. After they record the suit on their **Data Collection** handout, the entire group should reference the **Physical Activity Card Game** handout and complete the assigned physical activity. Each group should flip through all ten cards.

VIRTUAL FACILITATION OPTIONS

- If students are in a virtual situation, consider flipping cards on screen and using the breakout group feature, a shared/live document or making students complete individually.

Apply

8. Distribute one **What Are the Odds?** handout to each group and review the first two steps. Give groups approximately 8–10 minutes to complete their calculations to determine which suit was most likely to be flipped during their game. Use the **What Are the Odds?** answer key for reference.
9. Since Clubs was the suit most likely to be picked during this game, invite the entire class to stand up and together do the bone-strengthening exercise—10 jumping jacks. Then, they can return to their seats.

Note: If time allows, you can also lead the class in completing together the aerobic exercise and the muscle strengthening exercise.

Discuss

10. Invite 3–4 students to share one thing they have learned about NCDs. Correct any misconceptions as they arise.
11. Then, remind students that the daily recommendation of physical activity for kids their age is 60 minutes. Ask a volunteer to calculate how many hours that is per week and share with the class. If nobody volunteers to share, tell students that is 7 hours per week of moderate to vigorous physical activity.

Reflect

12. Take time to facilitate students' reflection on their experiences during the session. Make sure students understand the following:
 - Over 41 million people die of NCDs each year.
 - Getting enough physical activity is one way to reduce your risk of developing NCDs.
 - It is recommended that you get 60 minutes of physical activity each day.
 - The three types of activity are aerobic, muscle-strengthening, and bone-strengthening.

EXTENSION IDEAS FOR EDUCATORS

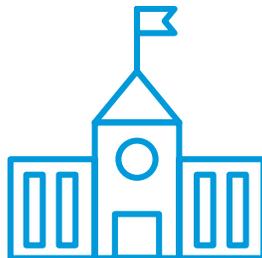
- Provide students with the opportunity to design a board, card, or online game that encourages physical activity using what they have learned in the session.
- Ask each group to create a 2–3-minute fitness routine based on the common forms of physical activity in its assigned country and lead the class in participating.



NATIONAL CONTENT STANDARDS

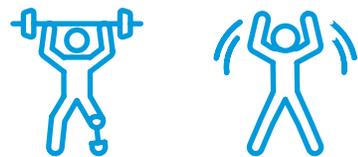
UNITED STATES

- [National Health Standards](#)
 - Standard 1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.
 - Standard 3: Students will demonstrate the ability to access valid information, products, and services to enhance health.
 - Standard 6: Students will demonstrate the ability to use goal-setting skills to enhance health.
- [Common Core State Standards for Math](#)
 - SP.A.1: Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
 - RP.A.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
- [Common Core State Standards for English Language Arts](#)
 - Writing
 - CCSS.ELA-LITERACY.CCRA.W.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
 - Speaking and Listening
 - CCSS.ELA-LITERACY.CCRA.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
 - CCSS.ELA-LITERACY.CCRA.SL.2 Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.



ACTIVITY RECOMMENDATIONS

Every day: 60 minutes of physical activity

| Type of Activity | Recommendation | Examples ³ |
|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Aerobic</p>  | <p>Most of the 60 minutes of activity should be moderate-intensity or vigorous aerobic.</p> <p>Vigorous activity should be performed at least 3 days a week.</p> | <p>Moderate intensity:</p> <ul style="list-style-type: none"> • Walking to class • Hiking • Yoga <p>Vigorous intensity:</p> <ul style="list-style-type: none"> • Jogging • Fast dancing • Most competitive sports |
| <p>Muscle-strengthening</p>  | <p>3 days a week (as part of the 60 minutes of daily activity)</p> | <ul style="list-style-type: none"> • Push-ups • Sit-ups • Weightlifting • Resistance band exercises |
| <p>Bone-strengthening</p>  | <p>3 days a week (as part of the 60 minutes of daily activity)</p> | <ul style="list-style-type: none"> • Walking • Jumping rope • Lifting weights • Volleyball |



³ https://www.cdc.gov/nccdphp/dnpa/physical/pdf/PA_Intensity_table_2_1.pdf

PHYSICAL ACTIVITY CARD GAME



HEART

Aerobic Activity

**RUN IN PLACE
FOR 10 SECONDS**



SPADE

Muscle-Strengthening Activity

**5
WALL PUSHUPS**



CLUB

Bone-Strengthening Activity

**10
JUMPING JACKS**



DIAMOND

Player's Choice



**HIGH KNEES FOR
10 SECONDS**



**10 TEXTBOOK BICEP
CURLS**



**IMAGINARY JUMP ROPE
FOR 10 SECONDS**

PHYSICAL ACTIVITY CARDS

| | |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|  HEART |  SPADE |
|  CLUB |  HEART |
|  CLUB |  SPADE |
|  CLUB |  DIAMOND |
|  HEART |  CLUB |

CARD SUIT DATA COLLECTION

| Card | Suit (Circle One) | Card | Suit (Circle One) |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 |     | 6 |     |
| 2 |     | 7 |     |
| 3 |     | 8 |     |
| 4 |     | 9 |     |
| 5 |     | 10 |     |



CARD SUIT DATA COLLECTION

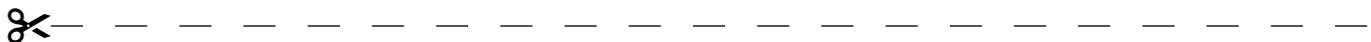
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| 3 |     | 8 |     |
| 4 |     | 9 |     |
| 5 |     | 10 |     |

WHAT ARE THE ODDS?

Step 1: Calculate the odds of each card suit being flipped throughout the game. Express your ratios in both fractions and percentages.

| | |
|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
|  HEARTS _____ / _____ _____% |  SPADES _____ / _____ _____% |
|  CLUBS _____ / _____ _____% |  DIAMONDS _____ / _____ _____% |

Step 2: Based on your results, which suit was your group most likely to draw during the game: _____



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|  HEARTS _____ / _____ _____% |  SPADES _____ / _____ _____% |
|  CLUBS _____ / _____ _____% |  DIAMONDS _____ / _____ _____% |

Step 2: Based on your results, which suit was your group most likely to draw during the game: _____

WHAT ARE THE ODDS? | ANSWER KEY

Step 1: Calculate the odds of each card suit being flipped throughout the game. Express your ratios in both fractions and percentages.

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>HEARTS</p> $\frac{3}{10}$ <p><u>30%</u></p> |  <p>SPADES</p> $\frac{2}{10}$ <p><u>20%</u></p> |
|  <p>CLUBS</p> $\frac{4}{10}$ <p><u>40%</u></p> |  <p>DIAMONDS</p> $\frac{1}{10}$ <p><u>10%</u></p> |

Step 2: Based on your results, which suit was your group most likely to draw during the game: Clubs