

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 that 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

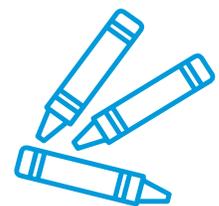
OBJECTIVES

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 utilise 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 exercised?
 - 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.¹ And since NCDs account for over 41 million deaths worldwide each year,² that means that 2.5–4.1 million lives could be saved if we all exercised enough!

¹ <https://bit.ly/2PnBRqx>

² <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.



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.

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.

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 star jumps. 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.

UK DEPARTMENT FOR EDUCATION STANDARDS & GUIDANCE

UNITED KINGDOM

[Physical Health and Mental Wellbeing Guidance \(Primary and Secondary\)](#)

- **Physical Health and Fitness (Primary)**

Pupils should know:

- the characteristics and mental and physical benefits of an active lifestyle.
- the importance of building regular exercise into daily and weekly routines and how to achieve this; for example walking or cycling to school, a daily active mile or other forms of regular, vigorous exercise.
- the risks associated with an inactive lifestyle (including obesity).
- how and when to seek support including which adults to speak to in school if they are worried about their health.

- **Physical Health and Fitness (Secondary)**

Pupils should know:

- the positive associations between physical activity and promotion of mental wellbeing, including as an approach to combat stress.
- the characteristics and evidence of what constitutes a healthy lifestyle, maintaining a healthy weight, including the links between an inactive lifestyle and ill health, including cancer and cardiovascular ill-health.

Mathematics

- [Ratio and proportion \(KS2\)](#)

Pupils should be taught to:

- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.
 - solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison.
 - solve problems involving similar shapes where the scale factor is known or can be found.
 - solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
- [Ratio, proportion & rates of change \(KS3\)](#)

Pupils should be taught to:

- use ratio notation, including reduction to simplest form.
- divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio.
- understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction.

[English KS3](#)

- Speaking

Pupils should be taught to:

- speak confidently and effectively, including through using Standard English confidently in a range of formal and informal contexts, including classroom discussion.
- speak confidently and effectively, including through giving short speeches and presentations, expressing their own ideas, and keeping to the point.
- speak confidently and effectively, including through participating in formal debates and structured discussions, summarising and/or building on what has been said.
- using Standard English confidently in their own writing and speech.

- Writing

Pupils should be taught to:

- write accurately, fluently, effectively and at length for pleasure and information through:
 - summarising and organising material, and supporting ideas and arguments with any necessary factual detail.
 - applying their growing knowledge of vocabulary, grammar and text structure to their writing and selecting the appropriate form.

ACTIVITY RECOMMENDATIONS

Every day: 60 minutes of physical activity

Type of Activity	Recommendation	Examples ³
Aerobic 	<p>Most of the 60 minutes of activity should be moderate-to-vigorous intensity aerobic activities.</p> <p>A variety of types and intensities of physical activity across the week should be carried out.</p>	<p>Moderate intensity:</p> <ul style="list-style-type: none"> • Walking to school • Playground activities • Cycling on level ground <p>Vigorous intensity:</p> <ul style="list-style-type: none"> • Swimming • Fast dancing • Most competitive sports
Muscle-strengthening 	<p>3 days a week (as part of the 60 minutes of daily activity)</p>	<ul style="list-style-type: none"> • Skipping with a rope • Running • Netball/basketball • Gymnastics
Bone-strengthening 	<p>3 days a week (as part of the 60 minutes of daily activity)</p>	<ul style="list-style-type: none"> • Aerobics • Racquet sports • Ball games



³ <https://www.nhs.uk/live-well/exercise/physical-activity-guidelines-children-and-young-people/?tabname=fitness-guides;>
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832868/uk-chief-medical-officers-physical-activity-guidelines.pdf

PHYSICAL ACTIVITY CARD GAME



HEARTS

Aerobic Activity

**RUN IN PLACE
FOR 10 SECONDS**



SPADES

Muscle-Strengthening Activity

**5
WALL PUSH-UPS**



CLUBS

Bone-Strengthening Activity

**10
STAR JUMPS**



DIAMONDS

Player's Choice



**HIGH KNEES FOR
10 SECONDS**

OR



**10 TEXTBOOK BICEP
CURLS**

OR



**IMAGINARY SKIPPING
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	   



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Card	Suit (Circle One)	Card	Suit (Circle One)
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2	   	7	   
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.

 <p>HEARTS $\frac{\quad}{\quad}$ $\quad\% \quad$</p>	 <p>SPADES $\frac{\quad}{\quad}$ $\quad\% \quad$</p>
 <p>CLUBS $\frac{\quad}{\quad}$ $\quad\% \quad$</p>	 <p>DIAMONDS $\frac{\quad}{\quad}$ $\quad\% \quad$</p>

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



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WHAT ARE THE ODDS? | ANSWER KEY

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 <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