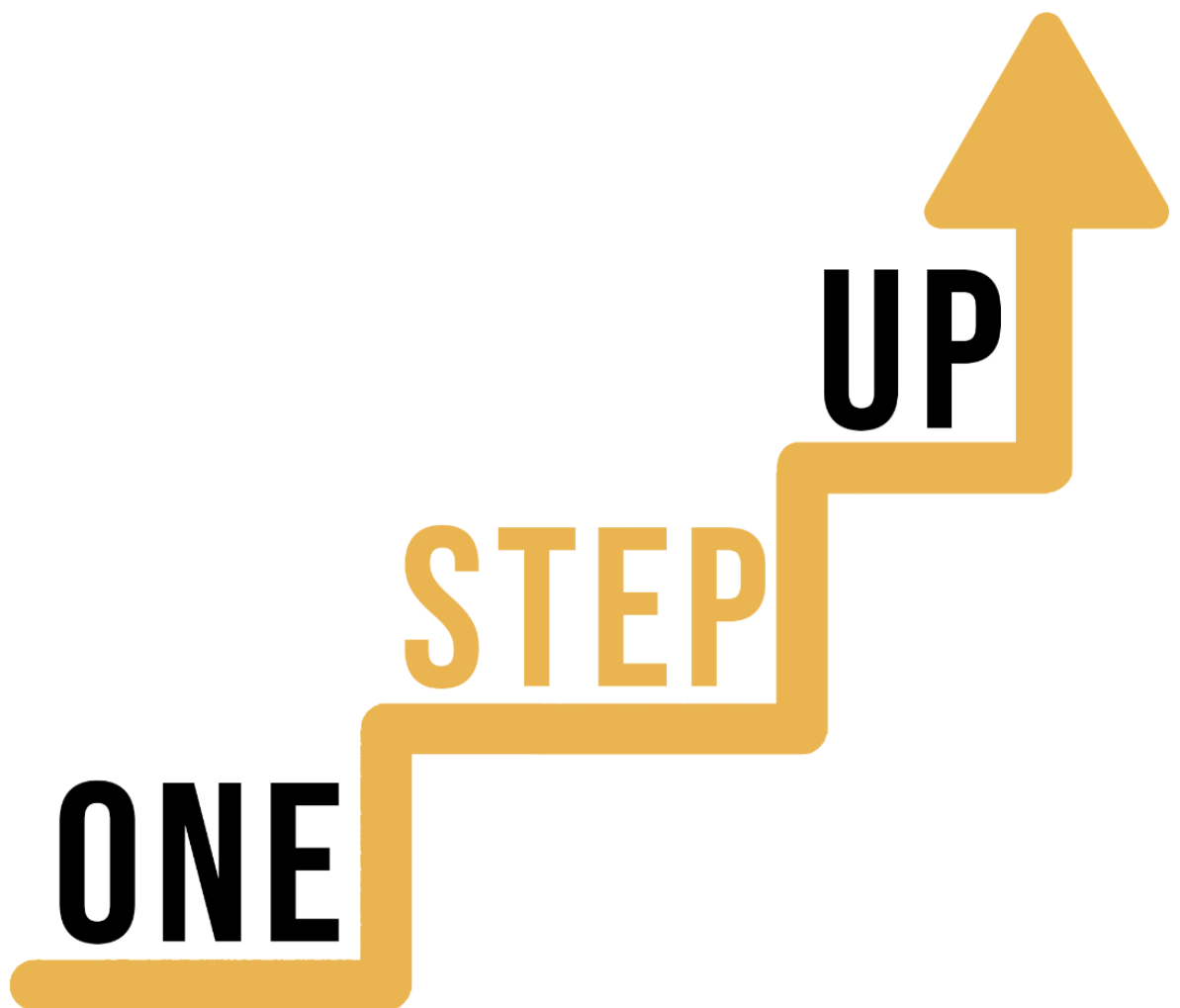


**BUILDING STEM
COMPETENCIES THROUGH
SPORTS & HOBBIES**

LEARNER HANDOUT





WHAT ARE SPORTS AND HOBBIES?

Sports are physical activities that are often competitive and governed by rules or regulations. They require some level of physical exertion, skill, and strategy. Examples of sports include football, basketball, tennis, and swimming.

Hobbies, on the other hand, are activities that individuals engage in for pleasure or enjoyment in their leisure time. They can be physical or non-physical and may or may not involve competition or rules. Examples of hobbies include reading, painting, gardening, playing musical instruments, and collecting stamps or coins. Hobbies can be pursued alone or with others and are often a way for individuals to relax, de-stress, and explore their interests outside of work or other obligations.

Sports and hobbies can be powerful tools for individuals to re-engage with lifelong learning, build social connections, and achieve social inclusion. Providing accessible learning opportunities, building confidence and self-esteem, developing transferable skills, and encouraging lifelong learning, sports, and hobbies can help maximise life potential for marginalised adults.

My Sports:

My Hobbies:


Let's take a look at some examples of people using their sports and hobbies to re-engage with lifelong learning, build social connections, and achieve social inclusion.

Sports and hobbies can provide a fun and engaging way for individuals to develop their mathematical competencies. Here are a few examples:




Sports statistics:

Many sports involve analysing statistics such as scores, player statistics, and game outcomes. Understanding and analysing these statistics requires mathematical skills such as data analysis, probability, and statistics.




Strategy games:

Hobbies such as chess or poker require players to think strategically and use mathematical concepts such as probability, statistics, and game theory to make optimal decisions.




Construction hobbies:

Hobbies such as model building, woodworking, or quilting require precise measurements and calculations to ensure accuracy and quality in the final product.



Fitness tracking:

Keeping track of fitness goals and progress requires individuals to calculate distances, times, and other metrics, which involves basic arithmetic and algebraic skills.



Video games:

Some video games involve solving puzzles and completing challenges that require mathematical reasoning and problem-solving skills.

Overall, engaging in sports and hobbies can provide a practical and enjoyable way to develop mathematical competencies, helping individuals to apply mathematical concepts in real-world contexts.

CASE STUDY – LEARN THROUGH SPORT

The National Adult Literacy Agency (NALA) in Ireland offers a diverse range of programs aimed at improving literacy and numeracy skills among adults. In collaboration with SOLAS and the Department of Further Education, Research, Innovation, and Science, NALA's "Learn through Sport" program is an innovative and engaging approach to enhancing the numeracy skills, reading, writing, math, and digital literacy skills of adults.



The programme features some of Ireland's most esteemed sports legends, including Philly McMahon, Cora Staunton, Bonnar Ó Loingsigh, Rosemary Smith, Valerie Mulcahy, and Keith Earls. Through intriguing stories and personal experiences, these sports legends offer insight into their own literacy and numeracy challenges, both in their personal and professional lives.

The "Learn through Sport" program is an excellent example of how literacy and numeracy skills can be woven into daily activities such as sports, making learning more relatable, enjoyable, and accessible to all. To learn more about this inspiring initiative, check out the promotional video on NALA's [website](#).

Sport-based learning is an educational approach that uses sports as a vehicle for teaching academic subjects and life skills. It involves incorporating sports activities and games into classroom lessons, with the goal of engaging students and helping them learn in a fun and interactive way. Sport-based learning can be used in a variety of academic subjects, including maths and science. For example, a science teacher might use a soccer game to teach students about physics concepts such as force, acceleration, and trajectory. Or a maths teacher might use a basketball game to teach students about area and geometry.



Sport-based learning has been shown to be effective in improving academic outcomes and promoting personal development. It can be especially beneficial for students who dislike traditional classroom learning or who have a particular interest in sports.

Q. What issues does the “Learn through Sport” initiative aim to address?

Q. What type of workshops did the “Learn through Sport” initiative offer adults?

Q. Can you think of any sports/hobbies that you enjoy that incorporate mathematical thinking?

LEARNING ACTIVITY

Transversal Theme	Mathematical (STEM) Competence		
Activity Title	Math In Motion – Calculating Distances		
Type of resource	Learning Activity		
Photo	<div style="text-align: center;">  <p>Photo by Mira Kireeva on Unsplash</p> </div>		
Duration of Activity (in minutes)	60-90 minutes	Learning Outcome	<ul style="list-style-type: none"> • Develop numerical skills through sports.

Aim of activity	This activity aims to build your mathematical (STEM) competences through the topic of sports and hobbies.
Materials Required for Activity	<ul style="list-style-type: none"> ● Measuring tape/Mobile Application ● Stopwatch ● Calculator
Step-by-step instructions	<p>Instructions:</p> <p>Step 1: Choose a running route that is a specific distance, such as 1 kilometre.</p> <p>Step 2: Measure the distance of the route using a measuring tape or a mobile phone application such as <i>Google Maps</i>.</p> <p>Step 3: Run the route and time your run using a stopwatch.</p> <p>Step 4: Calculate your running pace in minutes per kilometres per hour.</p> <p>Step 5: Calculate your total running time for a longer distance, such as a 10K or half marathon, based on your pace.</p> <p>Step 6: Compare your results with other runners or with average times for the distance.</p> <p>Variations:</p> <ul style="list-style-type: none"> ● Use a different sport or activity, such as swimming or biking, and adapt the activity to calculate distances and times for those activities. ● Calculate your heart rate or calorie burn during the activity using math concepts such as percentages and ratios. ● Graph your running times over a period of time to analyse trends and patterns in their performance.

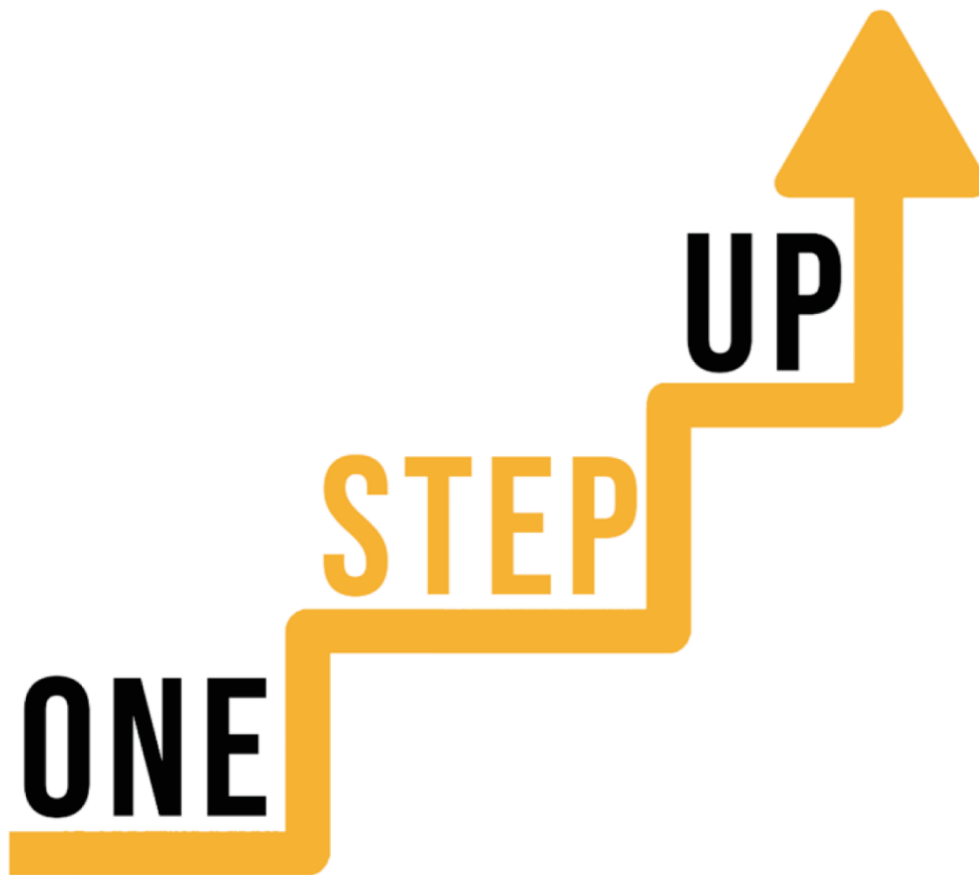
ADDITIONAL READING OR STUDY MATERIALS

Congratulations, you have reached this point and completed your self-reflection activities related to building mathematical competences through sports and hobbies.

What comes next? If you would like to learn more about the topics you have covered so far in this lesson, we have prepared the following additional reading materials for you. This section presents some links to extra materials and videos that we have found online that we think will help you to take the next step in developing your knowledge.

Resource Title:	Building Mathematical (STEM) Competences through Sports & Hobbies Disciplines
Topic Addresses:	The Link Between Sports and Maths
Introduction to the resource:	This additional material presents helpful tips that are useful to better understand how sports and maths are related. This can provide you with an example to explore in your own life and how you can build your mathematical competences through non-traditional learning.
What will you get from using this resource?	<p>By learning about different ways to incorporate mathematical thinking in your preferred sports and hobbies, you can build your skills in this area. This can be helpful to better understand mathematical concepts that we use every day. Building mathematical competencies is important for several reasons:</p> <ul style="list-style-type: none"> ● Everyday life: Mathematics is a fundamental part of everyday life. From managing finances to cooking to traveling, we use math in many aspects of our daily routines. Having strong mathematical competencies can help us make better decisions and solve problems more effectively. ● Education and career opportunities: Mathematics is a core subject in many educational curricula, and strong mathematical skills are often required for pursuing higher education or career opportunities in fields such as science, engineering, finance, and technology. Developing mathematical competencies can open up more opportunities for learning and career advancement. ● Critical thinking: Mathematics involves logical thinking and problem-solving, which are important skills for developing critical thinking. By practicing mathematical competencies, we can develop our ability to think logically and systematically, and to analyse and solve complex problems. ● Innovation and creativity: Mathematics is essential for innovation and creativity in many fields, including science, technology, and art. Developing mathematical competencies can help us think more creatively and explore new ideas and concepts.
Link to resource:	https://www.mathnasium.com/madisonwest/news/did-you-know-how-much-math-there-sports-mw

Resource Title:	Building Mathematical (STEM) Competences through Sports & Hobbies Disciplines
Topic Addresses:	Understanding Maths through Sports
Introduction to the resource:	This additional material presents an engaging video that explores the topic of demonstrating how mathematical thinking is present in everyday sports. It encourages learners to consider the role of mathematics in the world around us.
What will you get from using this resource?	<p>This link provides additional information on mathematical structures in the game of soccer. This can be applied in:</p> <ul style="list-style-type: none"> ● Scoring and statistics: Math is used to keep track of scores and statistics in football games. This includes calculating points, goals, assists, and other metrics that help evaluate player and team performance. ● Strategies and tactics: Coaches use mathematical concepts such as probability and statistics to develop strategies and tactics for the game. For example, they may use data analysis to determine the best formations or plays to use against a particular opponent. ● Player evaluation: Math is used to evaluate player performance in football, including factors such as passing accuracy, shooting efficiency, and defensive effectiveness. These metrics can help coaches and scouts identify and recruit talented players. ● Field dimensions and measurements: Math is used to design and measure football fields, including the length, width, and goalpost dimensions. It is also used to calculate distances and angles during the game, such as for free kicks or penalty shots. ● Video analysis: Math is used in video analysis to track player movements and identify patterns and trends in player and team behaviour. This data can be used to make adjustments and improve performance.
Link to resource:	https://www.youtube.com/watch?v=Nv7JYtVbzvI



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