

Our Own Sports School (Class 6)

Description	In this project, learners develop an understanding of different types of motion and standard measurement. They create a Sports Training Guide for their own Nagaland sports school, drawing on local games such as Naga Wrestling (Kene), bamboo stilt walking, football, and tug of war. These sports are popular in schools and communities across Nagaland and are also celebrated during the Hornbill Festival. On Day 5, learners run a mini sports school and train younger students using the guide they have built.
Leading Question	Can science help us become better at sports?
Subjects Covered	Science
Total Time Required	In Class: 40 minutes a day for 5 days At Home: 20 minutes a day for 4 days
Resources Required	For a class of 40 students: • Notebooks and pencils or pens (all students) • Ruler or 15 cm scale from geometry box (1 per group) • Measuring tape, OR newspaper strips, and thread with a ruler (1 per group) • Objects related to the chosen sport: football, rope for tug of war, bamboo stick for stilt walking (available in school or community), bamboo spinning top, bow and arrow for archery, skipping rope • Cardboard, old newspaper, wooden sticks for a pitch model (collected from home or environment) • Scrap paper or recycled notebook pages for the training guide
Learning Outcomes	Learners will be able to: Knowledge-Based Outcomes • Identify and describe three types of motion (linear, circular, oscillatory) in at least two Nagaland or popular sports. • Explain why standardised measurement (SI units: mm, cm, m, km) is needed for fairness and performance in sports. • Measure lengths correctly using a ruler and measuring tape, starting from zero. • Analyse how specific motion techniques and measurement choices can improve sports performance. 21st Century Skill Outcomes: • Compare performance with and without a standard technique and explain the difference. • Work in groups across all five days to build and present a shared training guide. • Present the sports school to younger learners and explain techniques clearly. Design and illustrate a training guide using hand-drawn diagrams and Nagaland sport examples.
Suggestions for Teachers	1. Teachers should check the material and plan for each day before the class starts. 2. If the material for any day is not available at school, inform the students one day in advance so they can bring it the next day. 3. Use this project before teaching 'Chapter 5: Measurement of Length and Motion'. 4. Before starting the first day, divide all students into groups so that they can do group work, experiments or any other activity in groups. Make sure that the groups are always mixed and inclusive (with students of all genders and all levels).

Day 1: Learners will identify three types of motion in sports and select the sport they want to teach in their sports school.

Time	Activity and Description
10 minutes	<u>Introduction to the Project: (Whole Class)</u> Ask learners the following questions and take 2 to 3 answers: • What is your favourite sport or game to play in Nagaland? (Expect answers such as football, Kene, bamboo stilt walking, tug of war, kabaddi.)

	- What do you think makes someone really good at that sport? After taking responses, the teacher explains: - One important part of all sports is motion or movement. - In this project, you will work in groups and set up your own sports school, similar to the ones that train athletes for the Hornbill Festival sports events held at Kisama Heritage Village near Kohima. - You will teach others how to improve in a sport by understanding motion and measurement. The leading question of this project is: <i>Can science help us become better in sports?</i> Tell learners what they will produce by Day 5: - A Sports Training Guide with at least two motion-based techniques and one measurement tip for their chosen sport. - On Day 5, they will use this guide to run a mini sports school and train younger learners.								
15 minutes	<u>Types of Motion: (Whole Class)</u> The teacher explains to learners: - When any object or person moves from one place to another, we say it is in motion. To know that something has moved, we need a reference point: something that stays still while the other thing moves. Introduce the three types of motion with physical actions: 1. Linear Motion: Motion in a straight line. - Ask learners to take 10 steps forward, or one learner demonstrates if space is limited. <i>Teacher says: "Think about a Kene wrestler pushing their opponent straight out of the circle. That forward push is linear motion."</i> 2. Oscillatory Motion: Motion back and forth. - Ask learners to swing their upper body left and right like a bamboo in the wind. <i>Teacher says: "Think about a football player swinging their leg back and then forward to kick the ball. That back-and-forth swing is oscillatory motion."</i> 3. Circular Motion: Motion along a round path. - Ask learners to rotate both arms in big circles, like a windmill. <i>Teacher says: "Think about the rope spinning overhead during a skipping game, or a traditional spinning top (latoo) that children spin during festivals. That spinning is circular motion."</i> Show all three motions using football as one example: Linear: A player sprinting straight toward goal. Oscillatory: The leg swinging back and forth before a kick. Circular: The ball spinning or curving during a corner kick. (For examples in other sports, see Appendix 1.)								
15 minutes	<u>Identifying Motion in Sports: (Group Work)</u> Divide the class into groups of 5 to 6 learners. They will work in the same groups throughout the project. Group Roles (assign before the activity): Leader: Keeps the group on task. Recorder: Writes answers in the notebook. Materials Manager: Collects and returns materials. Reporter: Shares findings with the class. Observer: Watches and notes any motion demonstrated physically. Group Discussion and Selection of Sport: - Each group discusses and selects one sport they want to teach in their sports school. - Rule: The chosen sport must show at least two of the three types of motion. Use the table below to help groups select a sport. All examples are from Nagaland and popular contexts: <table><tr><th>Sport/Game</th><th>Linear Motion</th><th>Oscillatory Motion</th><th>Circular Motion</th></tr><tr><td>Football</td><td>Sprinting straight toward goal</td><td>Leg swings back and forth before a kick</td><td>Ball spins or curves during a corner kick</td></tr></table>	Sport/Game	Linear Motion	Oscillatory Motion	Circular Motion	Football	Sprinting straight toward goal	Leg swings back and forth before a kick	Ball spins or curves during a corner kick
Sport/Game	Linear Motion	Oscillatory Motion	Circular Motion						
Football	Sprinting straight toward goal	Leg swings back and forth before a kick	Ball spins or curves during a corner kick						

	Naga Wrestling (Kene)	Pushing opponent straight out of the circle	Shifting weight back and forth to balance	Rotating and twisting while grappling
	Bamboo Stilt Walking	Walking forward in a straight line	Body sways side to side to keep balance	Feet make small circular adjustments
	Traditional Naga Archery (Hornbill Festival)	Arrow travels straight toward the target	Bowstring moves back and forth when released	Archer's arm rotates while aiming and releasing
	Tug of War	Rope moves straight toward winning team	Rope moves back and forth during pulling	Hands rotate while gripping the rope
	Skippping Rope	Moving forward while skipping	Body moves up and down repeatedly	Rope moves in a circular path around body
Once the group selects its sport, the Recorder writes in the notebook: - Which sport has our group chosen? - How do the three types of motion happen in this sport? Draw pictures if writing is difficult. Leading Question Moment (2 minutes): Ask 2 to 3 groups: How does knowing about motion bring us one step closer to answering our question? Can science help us become better in sports?				
Homework	Answer Q 2 (i) and (ii) on page 97 of your textbook. Also write answers to: - Which sport has my group chosen? - Which motion is most important in this sport? - What challenge do players face in this sport? Think of a challenge a player in your village or school faces.			

Day 2 : Learners will analyse motion in their chosen sport, practise improving it, and begin writing Part 1 of their Sports Training Guide.

Time	Activity and Description
5 minutes	<u>Recap and Warm-Up: (Whole Class)</u> - Share Q 2 (i) True and Q 2 (ii) True. Ask learners to check their own answers. - Ask 2 to 3 pairs to share: How does motion affect performance in their chosen sport? <i>Teacher says: Yesterday we saw three types of motion in sports like Kene, football, and bamboo stilt walking. Today we find out how changing those motions can make a player better.</i> Leading Question Moment (2 min): What is one way motion in your sport could be improved? How does that connect to our question: Can science help us become better in sports?
20 minutes	<u>Analysis and Improvement of Motion: (Group Work - outdoors if possible)</u> If possible, take learners to the school ground or open area. Groups sit together and discuss their Day 1 homework: Which motion is most important? What challenges do players face? Each group then performs at least two motions from their sport: First attempt: Try the motion without any change. Observe and discuss. Second attempt: Try with one specific improvement. Observe and discuss. Examples for Nagaland sports: Example 1: Kene (Naga Wrestling) - The push First attempt: Push a partner without setting your feet. Second attempt: Plant one foot firmly behind you (linear motion) before pushing forward. Does this add more power? <i>Teacher says: In Kene, strong wrestlers use their body weight and linear motion to push straight and hard. Setting the back foot first makes a real difference. Try it.</i> Example 2: Football - Kicking for accuracy First attempt: Kick the ball without swinging the leg back deliberately.

	• Second attempt: Swing the leg fully back (oscillatory motion) and follow through completely after the kick. <i>Teacher says: Football is the most popular sport in Nagaland. Notice how your leg swings. A bigger, smoother oscillatory swing gives a more powerful and accurate kick.</i> Example 3: Skipping Rope • First attempt: Skip using the whole arm to swing the rope. • Second attempt: Keep arms close to the body and rotate only the wrist (smaller circular motion). <i>Teacher says: Rotating only the wrist instead of the full arm is a smaller, faster circular motion. It uses less energy and keeps the rope spinning smoothly.</i> (For examples in other sports, see Appendix 2.)
15 minutes	Sports Training Guide - Part 1: (Group Work) Bring learners back to class. Each group works on Part 1 of their training guide on a sheet of paper. Part 1: How motion-based techniques improve performance • What changes did we make to which motions? (Mention at least two.) • What types of motion did we change: linear, circular, or oscillatory? • How do these changes improve performance in our sport? Encourage groups to draw pictures of the positions and motions that help. These drawings will be part of the final guide. Recorder writes; Reporter prepares to share one key finding with the class.
Homework	Try more motions of your chosen sport and find ways to improve them. Answer Q 9 on page 98 of your textbook.

Day 3: Learners will understand why standardised measurement is needed, learn to measure correctly using SI units, and build a model or drawing of their sports field.

Time	Activity and Description
10 minutes	Discussion - Does Size Matter?: (Whole Class) Briefly discuss Day 2 homework answers. Remind learners of the leading question and what they will do on Day 5. <i>Teacher says: We know how motion helps in sports. But does the SIZE of the field or equipment matter? Could we just play on any sized ground?</i> Ask groups to discuss these questions and share answers with the class: • How will we know the football ground in Kohima is the same size as one in Dimapur? (Answer: By measuring to standard sizes.) • Does the length of a bamboo stilt affect how a person balances and walks on it? (Answer: Yes. Taller stilts shift the centre of balance higher and require wider oscillatory sways. The stilt height must suit the player.) • What happens if two Kene wrestlers use circles of different sizes? (Answer: The larger circle gives one wrestler more room to dodge, making the match unfair. A standard circle size ensures fair competition.) Summarise: Correct measurement ensures fairness, consistency, and better performance in sports. Leading Question Moment (2 min): Ask: How does measurement connect to our question: <i>Can science help us become better in sports?</i>
10 minutes	Understanding Standardised Measurement: (Group Work) Each group picks one object related to their sport (rope, bamboo stick, football, etc.) and measures it two ways: Each group member measures the object using their hand span or foot step. Record all measurements. <i>Teacher says: Are all your measurements the same? Why not? Because everyone's hands and feet are different sizes.</i>

	Now all measure the same object using a ruler or measuring tape. Record all measurements. <i>Teacher says: Are they the same now? Yes. Because we used a standard unit that is the same for everyone.</i> Explain the SI system: - The world uses a shared system called the International System of Units (SI Units). - The SI unit for length is the metre (m). 1 metre = 100 centimetres (cm). 1 cm = 10 millimetres (mm). For long distances like the road from Kohima to Dimapur, we use kilometres (km). 1 km = 1000 m. Ask learners to take out their 15 cm scale. Maximum measurement: 15 cm. Smallest unit readable: 1 mm.
5 minutes	<u>Guess the Correct Unit: (Whole Class Game)</u> Teacher names an object. Learners quickly write the best SI unit in their notebook. After each item, share the correct answer. - Length of a football goalpost (m) - Thickness of a rope used in tug of war (mm) - Distance from Kohima to Dimapur (km) - Width of a bamboo stilt stick (cm) - Diameter of a Kene (Naga wrestling) circle (m) - Length of the Doyang river (km)
15 minutes	<u>Learning to Measure Correctly and Making a Mini Sports Pitch: (Group Work)</u> Demonstration (5 minutes) - Whole Class: - Show the scale: point to the cm and mm marks. Measurement always starts from the 0 mark, not the edge of the ruler. - Show the measuring tape (or newspaper strip): keep it straight and flat. Start from the 0 mark. Guided Practice (10 minutes) - Group Work: Each group makes a small model or labelled drawing of the playing area for their chosen sport. <i>For Kene: Draw a circle of standard diameter and label the boundary.</i> <i>For Football: Draw the field with goalpost width marked and labelled.</i> <i>For Bamboo Stilt Walking: Mark a start point and finish point with the distance labelled.</i> - Use a ruler to measure and draw boundary lines. Use a measuring tape for larger distances. - Label key areas: boundary, goal area, centre circle, or equivalent for the chosen sport. Remind learners to avoid three common mistakes: - Not starting from zero on the ruler or tape. - Bending or lifting the ruler during measurement. - Reading the wrong unit (cm instead of m, or mm instead of cm). They will use this model or drawing on Day 5 to explain the playing area to younger learners.
Homework	Answer Q 1, Q 2 (iii), Q 3, Q 4, and Q 5 on page 97 of the textbook. Complete any remaining work on the model or drawing of the field.

Day 4 : Learners will explore how measurement improves sports performance, complete Part 2 of the training guide, and give and receive peer feedback.

Time	Activity and Description
5 minutes	<u>Recap: (Whole Class)</u> Discuss homework answers briefly: - Q 2 (iii): False - Q 3: (iv) Span - Q 5: 1.5 km = 1500 m Invite 2 to 3 learners to share what they worked on across the last three days. Remind them of the leading question: Can science help us become better in sports? <i>Teacher says: Today we find out how measuring things in our sport makes us better players. Then we give feedback on each other's guides and improve them.</i>
15 minutes	<u>Using Measurement to Improve Performance: (Group Work - outdoors if possible)</u>

	Each group picks one measurable aspect of their sport, measures it, and tests whether changing the measurement affects performance. Example 1: Kene (Naga Wrestling) - Circle size • Mark a small circle (1 m diameter) and a standard circle (2 m diameter) on the ground. • Try a short practice match in each circle. • [Critical Thinking] Does a smaller circle make the match harder or easier? Why? Example 2: Football - Run-up distance before a kick • First kick: Walk up 2 steps before kicking. Note the result. • Second kick: Measure and mark 4 metres. Run up from that mark and kick. • [Critical Thinking] Did the power or direction of the kick change? Example 3: Skipping Rope - Rope length • First attempt: Use a rope without checking the length. Measure it. • Second attempt: Adjust length so that when the rope is pressed underfoot, the handles reach the armpit. • [Critical Thinking] Did skipping become easier with the correctly measured rope? Ask groups: What did the measurement change? How does this help a new player joining your sports school?
10 minutes	<u>Sports Training Guide - Part 2: (Group Work)</u> Bring learners back to class. Groups write Part 2 of the training guide on a sheet of paper: Part 2: How measurement and correct equipment choice improves performance • What did we measure? (e.g., diameter of Kene circle, length of skipping rope, run-up distance) • What difference did the measurement make to performance? • What tips can we give new players joining our sports school? Write these as clear suggestions with drawings if possible.
10 minutes	<u>Peer Feedback: (Group Work)</u> Join two groups together. Groups exchange their training guides and read carefully. Each group gives feedback on: • Does the guide explain at least two motion-based techniques that improve performance? • Are the types of motion correctly named (linear, circular, or oscillatory)? • Does it clearly explain how measurement improves performance? • Is the guide clear enough for a younger learner (Class 4 or 5) to follow? Are the drawings helpful? • What is working well in this guide? What one specific change would make it better? Both groups share feedback one at a time. Remind learners: start with something positive, then give 1 to 2 specific suggestions. Individual Reflection Prompt (written in notebook): What is one thing I would change or improve in my group's guide based on the feedback I received today? (Students use this as the starting point for revision in Day 5.)
Homework	Use peer feedback to improve your training guide. Divide tasks within the group: • Cover page: Name of the sport and a drawing or illustration of it. • Final page: Names of all group members (coaches of your sports school). Note for Teacher: Coordinate with a colleague from Class 4 or 5 and identify 5 to 8 learners who are interested in the sports your groups have chosen. Confirm they are available to join the sports school on Day 5.

Day 5: Learners will finalise their Sports Training Guide, run their mini sports school for younger learners, and reflect on the full project.

Time	Activity and Description
10 minutes	<u>Including Peer Feedback and Compiling the Sports Guide: (Group Work)</u>

	Groups review the feedback from Day 4 and make final improvements to their guide. Compile the complete guide in this order: • Cover page (sport name and a drawing) • Part 1: Motion-based techniques (from Day 2) • Part 2: Measurement tips (from Day 4) • Final page: Names of all coaches The pitch model or labelled drawing should also be ready to use.
20 minutes	<u>Sports School in Action:</u> (Whole Class - Public Product) <i>Teacher says: "You are now the coaches of your sports school! Younger learners from Class 4 or 5 are joining your sports academy today. Use your guide to train them."</i> Each group has 5 to 8 younger learners with them and must teach: • At least two motion-based techniques, demonstrated physically (not just read out from the guide). • The playing area using their pitch model or drawing. • At least one measurement tip (e.g., how to choose the right rope length, or the standard size of a Kene circle). Suggested role division within the group for the sports school: • Coach 1: Demonstrates the motions to improve. • Coach 2: Shows and explains the field model or drawing. • Coach 3: Explains measurement tips and why they matter. • Coach 4 or 5: Manages the younger learners and helps them try the techniques. Note for Teacher: After Day 5, encourage groups to place their completed training guide in the school library or with the physical education teacher so other students can use it.
10 minutes	<u>Reflection:</u> (Individual Work - written in notebook) Learners write their individual answers to the following questions: • What is one new thing I learned about motion through this project? Give an example from a Nagaland sport. • What was the most interesting part of this project? What was the most challenging? • How does measurement help improve performance in sports? Give one specific example. • If I did this project again, what is one thing I would do differently or improve? If time permits, invite 2 to 3 learners to share their reflections with the class. Final Leading Question Moment: Ask the whole class: Based on everything we did this week, how would you now answer: Can science help us become better in sports? What is your best answer?

Assessment Criteria

A majority of my learners were able to:

- Correctly identify and name at least two types of motion (linear, circular, or oscillatory) in their chosen sport.
- Explain, with an example, how changing a motion-based technique improved performance in their sport.
- Measure a length correctly using a ruler or measuring tape, starting from the zero mark.
- State at least one reason why standardised SI units are needed in sports (fairness, consistency, or performance improvement).
- Contribute to a Sports Training Guide that includes at least two motion-based techniques and one measurement-based tip.
- Present their sports school to younger learners and demonstrate at least one technique physically.

Public Product Criteria

The Sports Training Guide must include:

- A cover page with the sport name and a drawing or illustration.
- Part 1: At least two motion-based techniques, with the type of motion named correctly (linear, circular, or oscillatory).
- Part 2: At least one measurement-based tip with an explanation of how it improves performance.
- Hand-drawn diagrams or pictures that support the written explanations.
- A final page listing all group members.

The Sports School session on Day 5 must:

- Physically demonstrate at least one technique to younger learners.

- Explain the playing area using the field model or drawing.
- Involve all group members in at least one role.

Additional Enrichment Activities and Modifications for Simplification

Additional enrichment activities:	• Hornbill Festival Sports Connection: Learners ask elders or family members which sports are held during the Hornbill Festival at Kisama Heritage Village. They identify the types of motion in each sport and note whether standardised measurements are used. • Measurement Hunt: Learners measure 5 different objects around the school (door width, window height, desk length, corridor length) and record measurements in a table using the correct SI unit. They compare results with a partner. • Create a Sports Tips Poster: Faster groups make a hand-drawn poster showing the three types of motion in their chosen sport, using Nagaland examples. This can be displayed in the classroom or corridor for others to learn from.
Modifications for simplification:	• If there is no measuring tape: Learners cut a strip of newspaper to the length of the object, then measure the strip against a 15 cm ruler, marking every 15 cm. This keeps the core measurement learning intact. • If time is short on Day 3: Skip the model-making activity and ask groups to draw a simple labelled diagram of their sports field in their notebooks instead. This preserves the measurement learning outcome. • For learners who find writing difficult: Allow them to draw the techniques and motions in their training guide with labels (just the motion type name). Their verbal explanation during the sports school on Day 5 counts as their demonstration of understanding.

APPENDIX

Appendix 1: Types of Motion in Nagaland and Popular Sports

Sport	Linear Motion	Oscillatory Motion	Circular Motion	Key Improvement Tip
Football	Sprinting straight toward goal	Leg swings back and forth before a kick	Ball spins or curves on a corner kick	A full follow-through swing increases power and accuracy.
Naga Wrestling (Kene)	Pushing opponent straight out of the circle	Shifting weight back and forth to find balance	Rotating and twisting while grappling	Plant the back foot firmly before a forward push to maximise linear force.
Bamboo Stilt Walking	Walking forward in a straight line	Body sways side to side to keep balance	Feet make small circular adjustments at contact points	Match stilt height to player so handles do not exceed shoulder height.
Tug of War	Rope moves straight toward winning team	Rope moves back and forth during the contest	Hands rotate while gripping the rope	Lean backward away from opponent to increase pulling force.
Skipping Rope	Moving forward while skipping	Body moves up and down repeatedly	Rope moves in a circular path around body	Rotate only the wrist rather than the full arm for a faster, lighter circular motion.

Appendix 2: Peer Feedback Form

Group giving feedback: _____ Group receiving feedback: _____

Feedback Question	Your Response
Does the guide explain at least two motion-based techniques that improve performance?	Yes / No / Partially
Are the types of motion correctly named (linear, circular, or oscillatory)?	Yes / No / Partially

Does it clearly explain how measurement improves performance in the sport?	Yes / No / Partially
Is the guide clear enough for a younger learner (Class 4 or 5) to follow?	Yes / No / Partially
Are the drawings or diagrams helpful?	Yes / No / Partially
What is working really well in this guide?	
One specific suggestion to make this guide better:	

CHAPTER-PROJECT MAPPING

Corresponding Chapter: **Chapter 5: Measurement of Length and Motion (Class 6 Science)**

Chapter Topic	Sub-Topic	Covered in Project?
Types of Motion	Linear Motion	Yes - Day 1 and Day 2
	Oscillatory Motion	Yes - Day 1 and Day 2
	Circular Motion	Yes - Day 1 and Day 2
Need for Standard Measurement	Reference point (introduced)	Yes - Day 1
	Why is hand or foot measurement unreliable	Yes - Day 3
	SI Units: mm, cm, m, km	Yes - Day 3
Measuring Length	Using a ruler correctly	Yes - Day 3
	Using a measuring tape	Yes - Day 3
	Unit conversions (m to km etc.)	Yes - Day 3 homework and Day 4
Application of Measurement	Measurement in sports performance	Yes - Day 4
Textbook Exercises	Q2(i)(ii) p.97; Q9 p.98; Q1,2(iii),3,4,5 p.97	Yes - Homework Days 1 to 3