

National Curriculum Connections & Educator Guide

*This document outlines how **Six String Nation** supports mandated learning outcomes across Canadian provincial and territorial curricula, while providing teachers with practical ideas for preparation and follow-up activities.*

1. OVERVIEW FOR ADMINISTRATORS

Six String Nation is a multimedia presentation centered on **Voyageur**, a guitar constructed from materials gathered from every province and territory of Canada. Additional materials adorn the case and strap. Each component carries a story that connects history, geography, culture, community and – through performances by your students/staff/community members – music.

The presentation supports curriculum expectations across Canada by addressing:

- Canadian identity and regional diversity
- Indigenous histories and perspectives
- Arts education (music, visual art, material culture)
- Inquiry, critical thinking, and storytelling
- Citizenship, equity, and reconciliation

Grade Ranges: Adaptable for Grades **4–6**, **7–9**, and **10–12**

Curricular Fit: Social Studies / History, Arts Education, Language Arts, Geography, Civics

2. PEDAGOGICAL FOUNDATIONS

Six String Nation aligns with widely adopted educational frameworks used across provinces: - Inquiry-based learning - Place-based learning - Experiential learning - Cross-curricular integration - Multiple perspectives and historical thinking

Students engage with **primary-source material** (objects, artifacts, oral histories) embedded within the guitar itself.

3. CROSS-CANADA CURRICULUM ALIGNMENT

A. Social Studies / History

Students will: - Examine Canadian identity through regional and cultural stories - Analyze historical events from multiple perspectives - Understand relationships between land, resources, and communities.

Six String Nation Connections: - Guitar components sourced from every province and territory - Stories connected to Confederation, migration, industry, resistance, and reconciliation - Indigenous, settler, and immigrant narratives presented side by side.

B. Arts Education (Music & Visual Art)

Students will: - Explore music as cultural expression - Analyze craftsmanship, materials, and design - Respond creatively to artistic works.

Six String Nation Connections: - *Voyageur* as both musical instrument and sculptural artwork - Connections to Canadian musicians, luthiers, and craft traditions - Opportunities for creative response (songwriting, visual art, performance).

C. Language Arts

Students will: - Engage in oral storytelling and listening - Conduct research and inquiry - Respond to texts and media through discussion and writing.

Six String Nation Connections: - Narrative-driven presentation format - Research pathways connected to specific guitar components - Prompts for reflection, creative writing, and oral communication.

D. Geography & Environmental Studies

Students will: - Understand Canada's physical regions and resources - Examine human–environment interactions - Explore sustainability and stewardship.

Six String Nation Connections: - Natural materials from across Canada (wood, stone, metals, bone, etc.) - Stories linking environment, geology, mineralogy, industry, and culture.

E. Civics & Citizenship Education

Students will: - Explore belonging, diversity, and identity - Reflect on social responsibility and reconciliation - Understand Canada as a shared civic space.

Six String Nation Connections: - Truth & Reconciliation themes - Equity, inclusion, and anti-racism narratives - Community voices and lived experience.

4. GRADE-LEVEL ENTRY POINTS

Grades 4–6

- Community stories and local connections
- Mapping Canada through materials
- Art and music as storytelling tools

Grades 7–9

- Identity, diversity, and regionalism
- Historical inquiry and media literacy
- Creative and analytical responses

Grades 10–12

- Critical analysis of nationhood
- Reconciliation and contested histories
- Cultural production and representation

5. BEFORE / DURING / AFTER CLASSROOM CONNECTIONS

Before the Presentation

- Research a guitar component from your province/territory/community
- Map the origins of Voyageur's materials
- Discuss: *What makes something "Canadian"?*

During the Presentation

- Active listening and questioning
- Note-taking on stories that resonate
- Connections to current units of study

After the Presentation

- Creative responses (art, music, writing)
- Inquiry projects based on a chosen component
- Class or school-wide exhibitions or performances



6. SUMMARY FOR BOOKING ADMINISTRATORS

Six String Nation offers a rare opportunity for students to encounter Canadian history, culture, and music through a single, compelling artifact. During the “performance pocket” segment of the presentation, it creates an occasion for music classes or particular talents from within the student, staff or parent community to play a special role in bringing this artifact to life.

The presentation:

- Supports mandated curriculum outcomes
- Engages multiple grade levels and subject areas
- Encourages meaningful pre- and post-visit learning
- Aligns with national priorities in reconciliation and inclusion.

7. PROVINCIAL & TERRITORIAL CURRICULUM SNAPSHOTS (APPENDICES)

APPENDIX A – ONTARIO CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies (Grades 4–6)

- Heritage and Identity in Canada
- People and Environments

Canadian History (Grades 7–10)

- New France and British North America
- Canada, 1890–Present
- Canada in the Contemporary World

Arts Education (Grades 4–12)

- Music: responding, reflecting, and creating
- Visual Arts: analysis of form, material, and cultural context

English / Language (Grades 4–12)

- Oral communication
- Media literacy
- Research and inquiry skills

Ontario-Specific Six String Nation Connections: - Components linked to Parliament Hill, Indigenous communities, immigration, arts institutions, and Canadian sports history - Strong alignment with inquiry-based learning and cross-curricular expectations emphasized by the Ministry of Education.

APPENDIX B – ALBERTA CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies (Grades 4–9)

- Alberta: Sense of Place and Belonging
- Canada: The Stories, Histories, and Peoples of Canada

Social Studies (High School)

- Canadian identity
- Historical perspectives and nationalism
- Citizenship and civic engagement

Fine Arts (Grades 4–12)

- Music as expression of culture and identity
- Visual art and design through material culture

English Language Arts (Grades 4–12)

- Oral communication and listening
- Textual analysis and personal response
- Research and critical thinking

Alberta-Specific Six String Nation Connections:

- Alberta-based guitar components (ranching, rodeo culture, Black history, Indigenous materials, natural resources)
- Direct alignment with Alberta's emphasis on citizenship, identity, and multiple perspectives

APPENDIX C – B.C. CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies (Grades 4–9)

Big Ideas:

- British Columbia and Canada are shaped by diverse peoples and cultures
- The pursuit of identity, justice, and equity shapes societies
- Natural resources and the environment influence human settlement and activity

Curricular Competencies:

- Use inquiry processes and skills to ask questions and gather information
- Assess significance and perspectives in historical and contemporary contexts
- Make ethical judgments about past and present events

Social Studies (Grades 10–12)

- 20th Century World History / Comparative Cultures
- Human Geography / Physical Geography
- Genocide Studies / Social Justice (where offered)
- Indigenous-focused courses (e.g., BC First Peoples)

Arts Education (Grades 4–12)

- Exploring identity, place, culture, and belonging through artistic expression
- Responding to and interpreting artistic works
- Creating and communicating meaning through music and visual art

English Language Arts (Grades 4–12)

- Oral language strategies and active listening
- Exploring story, voice, and perspective
- Research and inquiry processes
- Critical and creative thinking in response to text and media

Applied Design, Skills & Technologies (ADST) (Grades 4–9)

- Design thinking and making
- Understanding materials, tools, and processes
- Connections between traditional craft and modern design

BC-Specific Six String Nation Connections:

- Strong alignment with BC's emphasis on **"Big Ideas" and inquiry-based learning**
- Direct connections to BC materials in the guitar, including:
 - Haida Gwaii (Golden Spruce / Kiidk'yaas)
 - Forestry and environmental stewardship
 - Immigration and multicultural communities (e.g., Chinese-Canadian and South Asian histories)
- Supports **First Peoples Principles of Learning**, including:
 - Learning as holistic, experiential, and relational
 - Recognition of the importance of story and place
- Reinforces cross-curricular competencies in **communication, thinking, and personal/social awareness**

Six String Nation offers a natural model of the **inquiry-based, place-based approach** emphasized in the B.C. curriculum.

Students are invited to:

- Ask questions about the origins and meanings of materials
- Explore connections between **place, culture, and identity**
- Engage with **story as a primary way of knowing**
- Understand how individual and collective experiences shape Canada

Each component of the guitar functions as a **primary source**, allowing students to investigate history, geography, and culture through tangible artifacts rather than abstract concepts.

This approach reflects the **First Peoples Principles of Learning**, particularly:

- Learning is holistic, experiential, and relational
- Learning involves recognizing the consequences of one's actions
- Learning is embedded in memory, history, and story

APPENDIX D – SASKATCHEWAN CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies (Grades 4–9)

- Interactions between people and the land
- Indigenous perspectives and histories
- Cultural diversity and identity
- Power, governance, and citizenship

Social Studies (High School)

- Canadian Studies
- History (Canada and World)
- Native Studies / Indigenous Studies
- Law and Social Issues

Arts Education (Grades 4–12)

- Expressing ideas through music, visual art, drama, and dance
- Understanding cultural and historical context of artistic works
- Creative production and interpretation

English Language Arts (Grades 4–12)

- Speaking, listening, reading, writing, viewing, and representing
- Exploring identity and culture through text
- Inquiry and research processes

Saskatchewan-Specific Six String Nation Connections:

- Strong alignment with Saskatchewan's emphasis on **treaty education and Indigenous perspectives**
- Direct connections to:
 - One Arrow First Nation (Almighty Voice)
 - Northern communities and Dene culture
 - Prairie settlement and immigration histories
- Supports exploration of **land-based identity and community storytelling**
- Reinforces interdisciplinary learning across social studies, arts, and language

APPENDIX E – MANITOBA CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies (Grades 4–8)

- Canada's geography and regions
- Cultural diversity and identity
- Indigenous peoples and early societies
- Historical development of Canada

Social Studies (High School)

- Grade 10: Geographic Issues of the 21st Century
- Grade 11: History of Canada
- Grade 12: Global Issues (citizenship, sustainability, human rights)

Arts Education (Grades 4–12)

- Music, visual arts, drama, and dance as cultural expression
- Creative process and artistic response
- Understanding art in historical and cultural context

English Language Arts (Grades 4–12)

- Communication (oral, written, visual)
- Critical thinking and interpretation
- Research and inquiry

Manitoba-Specific Six String Nation Connections:

- Strong connections to:
 - Métis history (St. Boniface, Louis Riel)
 - Immigration and multicultural communities (e.g., Icelandic community in Gimli)
 - Early settlement and religious institutions
 - Indigenous arts (René Highway)
- Supports Manitoba's emphasis on **citizenship, identity, and global awareness**
- Provides entry points into discussions of **Confederation, resistance, and cultural continuity**

APPENDIX F – NOVA SCOTIA CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies

- African Nova Scotian history and communities
- Mi'kmaq history and perspectives
- Immigration and cultural diversity in Atlantic Canada
- Economic development and industrial history

Arts Education

- Music and storytelling traditions of Atlantic Canada
- Cultural expression through performance and material culture

English Language Arts

- Oral storytelling and narrative traditions
- Personal and cultural voice
- Inquiry and response

Nova Scotia–Specific Six String Nation Connections:

- **Pier 21 (Halifax)** — gateway for over a million immigrants; connects directly to curriculum on immigration, identity, and multiculturalism
- **Africville / Black Nova Scotian history** (via Home for Coloured Children material) — powerful entry point into discussions of race, community, and social justice
- **Bluenose II (Lunenburg)** — connects to maritime identity, craftsmanship, and Canadian symbols
- **St. John's Anglican Church (Lunenburg)** — connects to historic Nova Scotia fires, architecture, UNESCO World Heritage site status
- **Sydney Steel** — industrial history, labour, and regional economy
- **Trailer Park Boys** — wardrobe from each of the cast on the strap connects to Canadian comedy, Nova Scotia arts and contemporary entertainment
- In addition, *Voyageur* itself was constructed in Nova Scotia, in Pinehurst

APPENDIX G – NEW BRUNSWICK CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies

- Acadian history and identity
- Early colonial conflict and settlement
- Bilingualism and cultural diversity

Arts Education

- Cultural storytelling and regional heritage

English Language Arts

- Communication, narrative, and inquiry

New Brunswick–Specific Six String Nation Connections:

- **The Machault (Restigouche River)** — Seven Years' War, Acadian history, naval history and Mi'kmaq alliances
- **Hartland Covered Bridge** — engineering, regional identity, Canadian world records, Canadian regional food producers (potato chips!)
- **Acadian history and the Grand Dérangement** — connects to themes of displacement, resilience, and cultural survival (see Doucet House, PEI)
- **Algonquin Resort** — development of the railway hotel network, architecture, Beaux-arts design, Charles Painter

APPENDIX H – PRINCE EDWARD ISLAND CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies

- Confederation and early Canadian nation-building
- Rural and coastal community life
- Cultural identity in small communities
- Canadian food culture/food resource stewardship

Arts Education

- Literature and storytelling traditions
- Folk culture and creative expression

English Language Arts

- Narrative, voice, and literary response

PEI-Specific Six String Nation Connections:

- **Lucy Maud Montgomery (Cavendish)** — literature, identity, and global cultural impact
- **Charlottetown music history (J.R.'s Bar/Stompin' Tom/ Gene MacLellan / "Snowbird")** — Canadian music heritage, heritage loss
- **Mi'kmaq oyster culture (Lennox Island)** — foodways, local knowledge, and Indigenous traditions, Mi'kmaq First Nations
- **Acadian architecture (Doucet house)** — settlement, adaptation, and cultural continuity
- **Canadian Art (Tyler Aspin's "Canada Tree")** — Independent arts, issues around museum inclusion and collections

APPENDIX I – NEWFOUNDLAND & LABRADOR CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies

- Confederation (1949) and pre-Confederation identity
- Indigenous peoples of Newfoundland and Labrador
- Fisheries, outport life, and resource economies
- Maritime history and global connections

Arts Education

- Oral storytelling traditions
- Music as cultural identity

English Language Arts

- Oral narrative, memory, and place-based storytelling
- Personal and cultural expression

NL–Specific Six String Nation Connections:

- **Cape Race Lighthouse** — *Titanic* shipwreck, early wireless technology, and global maritime networks
- **Beothuk history (red ochre)** — indigenous technology, extinction, first contact, and critical examination of colonial history
- **Labradorite (Nain)** — geology, mineralogy, Inuit knowledge, and competing mythologies (Aurora Borealis)
- **The Christmas Seal (Twillingate)** — public health, remote communities, and ingenuity in service delivery

APPENDIX J – QUEBEC CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies

- Quebec history and identity
- Relations between Indigenous peoples and settlers
- Slavery, race, and social inequality in Canadian history
- Political and cultural development
- Citizenship and contemporary issues

Arts Education

- Cultural expression through theatre, music, and visual arts
- Architecture and performance spaces as cultural artifacts
- Interpretation of artistic works in historical context

English Language Arts

- Narrative and identity
- Oral communication
- Critical thinking and interpretation
- Exploring difficult histories through text and discussion

Quebec–Specific Six String Nation Connections:

- **St. Armand (chapel slate)**
 - Connects to the history of **slavery in Canada**, Loyalist migration, and the legacy of racism
 - Opens space for critical discussion about historical memory, language, and place names
 - Strong link to contemporary conversations about **reconciliation, equity, and historical accountability**
- **Théâtre Capitol (Quebec City, Beaux-Arts theatre)**
 - Architecture as cultural expression within a **UNESCO World Heritage urban context**
 - Role of performance venues in shaping cultural life and identity
 - Links to arts education, design, and the history of public cultural spaces
- **Manoir Papineau (Montebello)**
 - Political history, nationalism, and leadership in Quebec
 - French-English relations and constitutional development
- **Montreal Forum & Maurice Richard Ring**
 - Hockey as identity and culture in Quebec
 - The 1955 Richard Riot as a lens on language, class, and politics
- **Fairmount Bagel Bakery (Montreal)**
 - Immigration, entrepreneurship, and Jewish-Canadian cultural life
 - Food as cultural expression and continuity
- **Trudeau canoe paddle (Montreal / national)**
 - Symbolism of the canoe in Canadian identity
 - Political leadership and cultural mythology
- **Kuujuak (Inuit ulu carving)**
 - Inuit art, land-based knowledge, and northern cultural expression, caribou migration, herd as sustainable resource

APPENDIX K – YUKON CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies

- Northern identity and development
- Gold Rush history
- Indigenous (First Nations) perspectives
- Land use and resource economies

Arts & Language

- Storytelling rooted in place
- Oral history and narrative

Yukon–Specific Six String Nation Connections:

- **Jack London's cabin (Dawson City)** — literature and the Klondike Gold Rush
- **Marten hide stretcher (Van Bibber family)** — northern economy and lifestyle, art and photography history
- **Yukon Rose riverboat** — transportation and infrastructure
- **Mastodon Ivory** (Place Gold claim) — natural history, pre-history
- **Qikiqtaruk (Herschel Island) whaling station Community House** — Arctic exploration and environmental history, Beaufort coast

APPENDIX L – NORTHWEST TERRITORIES CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Social Studies

- Dene and northern Indigenous cultures
- Land, resources, and sustainability
- Governance and northern communities

Arts & Language

- Storytelling, carving, and material traditions
- Oral knowledge systems

NWT–Specific Six String Nation Connections:

- **Acasta Gneiss (Great Bear Lake)** — Earth science, deep time, and geology
- **Mammoth ivory carving (Fort Smith)** — prehistoric history and Indigenous artistry, Sonny MacDonald
- **Wildcat Café (Yellowknife)** — Gold Rush and northern settlement, food culture, language (Le Wildcat)
- **Gwich'in eagle feather (case artifact, Yellowknife)** — cultural knowledge, ceremony, and respect, local broadcasting, William Greenland

APPENDIX N – NUNAVUT CURRICULUM CONNECTIONS

Applicable Grades: 4–12

Strong alignment with emphasis on **Inuit Qaujimajatuqangit (IQ)**

Social Studies

- Inuit history, governance, and self-determination
- Arctic environment and sustainability
- Community and cultural continuity

Arts & Language

- Inuit art and craft traditions
- Oral storytelling and knowledge transmission

Nunavut–Specific Six String Nation Connections:

- **Whale baleen (Iqaluit)** — traditional materials and adaptation, whaling history, European 19th century fashions
- **Walrus tusk carving (Kangiqliniq/Rankin Inlet)** — art, hunting, and cultural continuity
- **Muskox horn (Iqaluktuuttiaq/Cambridge Bay)** — ecology, conservation, and northern species

8. TEACHER PREPARATION AND EXTENSION IDEAS

Before the Presentation (Low Prep Options)

1. “What is Canada?” Quick Discussion (10–15 min)

- Prompt: *What makes something Canadian?*
- Students brainstorm:
 - Places
 - People
 - Objects
 - Stories

2. Map the Guitar (15–20 min)¹

- Show a map of Canada
- Assign small groups a province/territory
- Ask: *What might represent this place on a guitar?*

3. Object as Story (10 min)

- Bring a personal object (or ask students to)
- Discuss:
 - Where did it come from?
 - What story does it tell?

¹ We have annotated maps of Canada - including some interactive links. Please email your request.

Before the Presentation (Deeper Inquiry)

4. Component Research Activity

- Assign one real SSN component per student/group
- Students research:
 - Location
 - Historical/cultural significance
- Share quick findings before the visit

5. Identity Web

- Students create a web of influences on their identity:
 - Family
 - Culture
 - Geography
 - Interests

Connect to the idea that the guitar is a *"national identity object."*

During the Presentation

Active Listening Prompts

- "A story that surprised me was..."
- "A connection I noticed was..."
- "Something I want to learn more about is..."

(Optional: simple note-taking sheet)

After the Presentation (Creative)

1. Build Your Own 'Class Guitar' (Visual Project)

- Each student contributes a "piece" (drawing, object, story)
- Assemble into a collective display

2. Songwriting or Spoken Word

- Prompt: *What does Canada sound like to you?*

3. Story Expansion

- Choose one component
- Turn it into:
 - A short story
 - A monologue
 - A news article

After the Presentation (Inquiry & Critical Thinking)

4. "Whose Stories Are Missing?"

- Discuss representation
- Debate the "Don Cherry Solution"² / "cancelling"
- Ask: what stories would students add?

5. Local Connection Project

- Identify an item from the school/community that could be part of the guitar
- Justify why
- Determine where and how it would work in the guitar, according to what you are able to learn about guitar-building (*ie.*, will it function acoustically, structurally, durably, aesthetically, etc.)

² After Don Cherry's bigoted comments in November 2019, Jowi was tempted to remove his trousers from the case lid entirely but was convinced by a group of students to let them partially remain as a learning opportunity.

Cross-Curricular Extensions

- **Geography:** map materials and resources
- **Science:** explore materials (wood, minerals, metals)
- **Arts:** design instruments or visual responses
- **Civics:** identity, belonging, reconciliation, LGBTQ2+

9. STEM & MATHEMATICS CONNECTIONS (OPTIONAL EXTENSION)

While Six String Nation is often experienced through history, culture, and the arts, it also offers rich opportunities for exploration in **mathematics, physics, and design**.

The guitar itself is a highly engineered object—where **shape, proportion, tension, and material** all work together to produce sound.

Mathematics Connections

Students can explore:

- **Measurement and scale** (e.g., neck length, fret spacing)
- **Ratio and proportion** (string length, tapering of the neck)
- **Geometry and trigonometry** (angles, slopes, and structural design)
- **Patterns and sequences** (fret placement follows predictable mathematical relationships)

Example Inquiry:

- How does the taper of the guitar neck relate to angle and ratio?
- How do small changes in length affect pitch?

Physics & Acoustics

Students can investigate:

- Vibration and frequency (how strings produce sound)
- Resonance and amplification (how the body of the guitar shapes tone)
- Material properties (wood, metal, bone, and their acoustic effects)

Example Inquiry:

- Why do different materials produce different tones?
- How does the size and shape of the guitar body affect sound?

Engineering & Design (ADST / Applied Learning)

Students can explore:

- Structural design and stability
- Material selection and sustainability
- Craftsmanship and precision

Example Inquiry:

- What makes a guitar strong enough to withstand string tension?
- How would you design your own instrument using local materials?

Classroom Activity Ideas

- Build a simple string instrument (shoebox guitar or monochord)
- Measure and map fret spacing patterns
- Compare sound from different materials
- Design a "Six String Nation-inspired" instrument using local or regional components



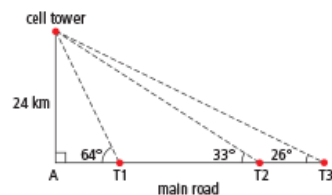
six string nation

THE STORY OF CANADA
as you've never held it before

9. A ramp enables wheelchair users and people pushing wheeled objects to more easily access a building.



- a) Determine the horizontal length, x , of the ramp shown. State your answer to the nearest foot.
- b) For a safe ramp, the ratio of vertical distance:horizontal distance needs to be less than 1:12. Would the ramp shown be considered a safe ramp? Explain.
10. **Unit Project** A satellite radio cell tower provides signals to three substations, T1, T2, and T3. The three substations are each located along a stretch of the main road. The cell tower is located 24 km down a road perpendicular to the main road. A surveyor calculates the angle from T1 to the cell tower to be 64° , from T2 to the cell tower to be 33° , and from T3 to the cell tower to be 26° . Calculate the distance of each substation from the intersection of the two roads. Express your answers to the nearest tenth of a kilometre.



11. In the construction of a guitar, it is important to consider the tapering of the strings and neck. The tapering affects the tone that the strings make. For the *Six String Nation Guitar* shown, suppose the width of the neck is tapered from 56 mm to 44 mm over a length of 650 mm. What is the angle of the taper for one side of the guitar strings?



Did You Know?

The *Six String Nation Guitar*, nicknamed *Voyageur*, is made from 63 pieces of history and heritage, from every part of Canada. It represents many different cultures, communities, and characters. The guitar is made from pieces of wood, bone, steel, shell, and stone from every province and territory. It literally embodies Canadian history.

SIX STRING NATION – SAMPLE MATH PROBLEMS

1. Fret Spacing & Ratios (Intro / Grade 7–9)

A guitar string has a vibrating length of **650 mm**.

When a player presses the string at a fret, the vibrating length shortens and the pitch increases. Each fret reduces the string length by a constant ratio of approximately **1 / 1.059**.

- Estimate the vibrating length of the string at the 1st fret.
- Estimate the vibrating length at the 5th fret.
- What pattern do you notice in how the string length changes?

2. String Tension & Right Triangle Model (Grade 8–10)

A guitar string runs from the bridge to the tuning peg, passing over the nut. Suppose:

- Horizontal distance from nut to tuning peg = **120 mm**
- Vertical drop from nut to tuning peg = **30 mm**

- Model this as a right triangle. What is the length of the string segment between nut and tuning peg?
- What is the angle of the string relative to the neck?
- Why might this angle matter for sound or tuning stability?

3. Sound Hole Area & Resonance (Grade 8–10)

The sound hole of a guitar is approximately circular with a diameter of **100 mm**.

- a) What is the area of the sound hole?
- b) If the diameter increased to 120 mm, how much larger would the area be?
- c) Why might increasing the size of the sound hole affect the sound?

4. Ramp Angle (see textbook sample above)

The guitar neck tapers from **56 mm wide** to **44 mm wide** over a length of **650 mm**.

- a) What is the change in width?
- b) What is the slope (ratio) of the taper?
- c) What is the angle of taper (for one side of the neck)?

5. Bonus (Higher-Level / Grade 10+)

Frequency & String Length

The frequency of a vibrating string is inversely proportional to its length.

If a string produces a note at **440 Hz** when its length is **650 mm**:

- a) What frequency would it produce if the vibrating length is reduced to 325 mm?
- b) What does this tell you about pitch and string length?



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THE STORY OF CANADA
as you've never held it before

The math problems are available as student worksheets and answer keys for teacher use. Please email your request.

For additional planning resources or customized curriculum alignment, please contact the **Six String Nation** project team.



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