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# LESSON PLANS: SASKATCHEWAN

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LESSON PLANS: SASKATCHEWAN

Grade 1: Number

Outcome: N1.9
• Demonstrate an understanding of addition of numbers with answers to 20 and the corresponding subtraction facts, concretely, pictorially, physically, and symbolically by:
  - using familiar and mathematical language to describe additive and subtractive actions from their experience
  - creating and solving problems in context that involve addition and subtraction
  - modelling addition and subtraction using a variety of concrete and visual representations, and recording the process symbolically.

Outcomes: N1.10
• Describe and use mental mathematics strategies (memorization not intended), such as:
  - counting on and counting back
  - making 10
  - doubles
  - using addition to subtract

Introduction to Lesson

Teacher Background:
Please review the teacher notes from the eBook.
This is located in the Mathletics Teacher Console > eBooks > Grade 1 > Lady Bug Crawl > Teacher notes.

On the interactive whiteboard, play video from "Lady Bug Crawl," located in the Mathletics Teacher Console under eBooks. This will initiate the thought process based on a visual for computational learning. Pause during the questions asked in the video.

Ask students for further extension:
• Why was it more useful to move 2 lady bugs than just 1?
• Why was the total of 14 the same in both of your number sentences?
• Could you have predicted that?
• How would the number sentences have been alike and different if 6 lady bugs had crawled from the right to the left?

ITEMS NEEDED
✓ Interactive whiteboard
✓ Mathletics teacher login
✓ Mathletics student logins
✓ Manipulatives
✓ Teacher notes from "Lady Bug Crawl"
✓ Student handout-Lady Bug Crawl
✓ Computers/Tablets

ASSESSMENTS
✓ Observation
✓ Participation
✓ Reviewing completed student Lady Bug Crawl worksheet
✓ Results from curriculum activities within Mathletics teacher account

ACCOMMODATIONS/MODIFICATIONS
✓ Concept Search number line for addition.
✓ Students who are having difficulty could be given smaller numbers or asked to find fewer combinations.
✓ Encourage students to click on “Something Easier” and “Something Harder” within Mathletics curriculum activities.

EXTENSION OF LEARNING
✓ Problem Solving Game
✓ Curriculum activities
✓ Live Mathletics Levels 1, 2
✓ Rainforest Maths Grade 1
eBook: Lady Bug Crawl

• Hand out the student sheet and have them complete student question. Give students enough time to brainstorm as many number sentences as possible. Provide students with manipulatives and have the students color and cut out the lady bugs and leaves.

• Display “Lady Bug Crawl” interactive on interactive whiteboard. Have the students show/share the number sentences they created.

  Prompt questions:
  - How many lady bugs are on each leaf at the start? At the end?
  - How did the two numbers you started with change?
  - Why couldn’t both numbers increase?
  - Why couldn’t both decrease?
  - Why couldn’t both decrease?

• Reinforcement: Have the students complete curriculum activities in the Student Console. Suggested activities; Model addition, Addition, Addition facts, Adding to 5, Adding to ten, Adding to make 5 and 10 and All about twenty.

• Extra-time activity/cross-curriculum activity: Have the students create their own problem using construction paper and bugs or animals as the visual. How many number sentences can they create?

After the lesson

• Have the students journal or share the learning that took place during this session.
• They should say what they learned today, and be specific with their examples.
• Students can show/share some of the number sentences they created.
• Discuss what they found to be hard/easy for the number sentences.
• Students can also glue their lady bugs and leaves on a piece of construction paper along with one number sentence.
Outcome: P1.1
• Demonstrate an understanding of repeating patterns (two to four elements) by:
  - describing
  - reproducing
  - extending
  - creating patterns using manipulatives, diagrams, sounds, and actions.

Introduction to Lesson
10 MINS

Teacher Background:
On the interactive whiteboard, bring up Concept Search from the Teacher Console > Demonstrations > Concept Search > Concept Search. Search patterns and click on the first slide; there will be a few visuals. This slide can be maximize to view by clicking on the square and arrow icon located at the bottom right-hand corner.

Display the first slide and ask the students what they are noticing.
• What are the fruits creating?
• What are the snap cubes creating?
• How are they similar and how are they different?

The next slide would show the patterns with numbers; students can discuss how to complete the pattern. Teachers can use a hundreds chart for prompting. The next two slides use snap cubes. Students can have the snap cubes at their desks to create their own patterns or follow along with what is being displayed on the slide.

Ask students for further extension:
• What other patterns can you create using snap cubes?
• Do you see any patterns in the classroom?
• What other objects, words, and/or numbers can you use to create patterns?

ITEMS NEEDED
- Interactive whiteboard
- Mathletics teacher login
- Student handouts from eBooks
- Classroom manipulatives
- Computers/tablets
- Math journals

ASSESSMENTS
- Observation
- Participation
- Reviewing completed eBooks
- Review journaling responses
- Results from the curriculum activities within the Mathletics Teacher Console

ACCOMMODATIONS/ MODIFICATIONS
- Allow student to access manipulatives to help create patterns.
- Encourage students to click on “Something Easier” and “Something Harder” within Mathletics curriculum activities.

EXTENSION OF LEARNING
- Complete any Problem Solving Games they haven’t worked on.
- Curriculum activities
- Explore Rainforest Maths (Grade 1, Space) within Mathletics
- Live Mathletics
LESSON PLANS: SASKATCHEWAN
Grade 1: Pattern and Relations

The Lesson

Centres

- Background for teacher—For the eBook centre, please review which pages to select for students to complete. Depending on how much work students can get done with each centre, rotate can occur about every 10 minutes. Groups will vary depending on class size.

  - Centre 1: Problem Solving—On the interactive whiteboard, place a Problem Solving game from the Demonstrations tab within the Teacher Console. Options are located under Problem Solving and then under Patterns. Have the students work in a group to solve the problems. To further their understanding, have students record ways they solved the problems in their journals.

  - Centre 2: Computers/tablets—Students are to work in their Student Console to complete Pattern curriculum activities. These activities are located in the Student Console under “Patterns.” Activities they can choose from are; Simple Patterns, Color Patterns, Missing It!, Pattern Error, and Balancing Act.

  - Centre 3: eBooks—Students are to complete the pre-selected pages. Teacher can place manipulatives to help support various learning styles. If you would like the students to pair up and complete partner activities, please refer to pages 5, 7, 11, 14, 16, 20, 22, 25 or 27. These activities are designed to solve with a partner.

- Extra-time activity/cross-curriculum activity: Have the students create an acrostic poem with the word pattern.

After the lesson

- Have the students discuss some of the patterns they came across.
- What are the different attributes used to create patterns?
- What are some of the strategies they used to solve a problem or complete a pattern?
- Have the students go home and look for patterns in their homes or community.
LESSON PLANS: SASKATCHEWAN

Grade 1: Space and Shape

OUTCOME: SS1.1
- Demonstrate an understanding of measurement as a process of comparing by:
  - identifying attributes that can be compared
  - ordering objects
  - making statements of comparison
  - filling, covering, or matching.

ITEMS NEEDED
- Interactive whiteboard
- Mathletics teacher login
- Measuring tools
- Computers/tablets
- Math journals
- Student logins
- Manipulatives

ASSESSMENTS
- Observation
- Participation
- Reports from the curriculum activities within the Mathletics Teacher Console

ACCOMMODATIONS/MODIFICATIONS
- Encourage students to click on “Something Easier” and “Something Harder” within the Mathletics curriculum activities.
- Provide students with manipulatives.

EXTENSION OF LEARNING
- Problem Solving Game under Balance
- Curriculum activities.
- eBooks—students completed pages selected by teacher

Teacher Background:
On the interactive whiteboard, bring up Concept Search from the Mathletics Teacher Console > Demonstrations > Concept Search

Start off with the definition from Animated Maths Dictionary for Grade One. Search the term measure. Have a class discussion on items/things that the students might measure.

Search comparing length under Demonstrations > Concept Search > Concept Search

There are a few slides in this visual. You can maximize the view by clicking on the square and arrow icon located at the bottom right-hand corner.

Display the first slide and ask the students what they are noticing:
- Which one is longer?
- How do you know?
- Is there something on/in your desk you can compare?

The next slide allows students to explore the classroom for objects. Have the students collect their information and then share with the class.
The Lesson

**Rainforest Maths**

- On the interactive whiteboard, click on the Demonstrations tab within the Teacher Console. Click on the Rainforest Maths icon. Click on grade 1 and start off with the length game.
- The game will display bugs and how long they are using a various objects. Display the first picture and have the students guess how many paper clips long the bug is. Students can write down their answers on paper. Have a student come up and drag the paper clips to find out the answers. Discuss what their answers were and how they came up them or what strategies they used.
- Teachers can carry on with other bugs by clicking on the More bug at the bottom right corner.
- **Reinforcement:** Computers/tablets—Have the students complete curriculum activities in the Student Console.
  
  **Suggested activities:**
  - Everyday Length
  - Everyday Mass
  - Filling Fast!
  - Which Holds More?
  - Comparing Length

- **Extra-time activity/cross-curriculum activity:** Pick an object in the school—it could be something in the hallway, schoolyard, or principal’s office. Have the students decide on a measurement tool such as counters, snap cubes, or paper clips. Discuss with students some strategies for choosing a proper-size measurement tool based on the item they want to measure. For example, if they want to measure a park slide, would they use counters, pencils, or their hands? Have the students predict the length and then confirm. Students can record pictures, words and numbers in their math journals.

After the lesson

- Discuss some of the items they measured and what tools they used.
- What objects were harder to measure (straight vs. round objects)?
- Have the student go home and measure a parent, guardian, or sibling using non-standard items such as paper clips or pencils erasers.
Outcome: N2.2
- Demonstrate understanding of addition (limited to 1 and 2-digit numerals) with answers to 100 and the corresponding subtraction by:
  - representing strategies for adding and subtracting concretely, pictorially, and symbolically
  - creating and solving problems involving addition and subtraction
  - estimating
  - using personal strategies for adding and subtracting with and without the support of manipulatives.

Introduction to Lesson

Teacher Background:
Review the Teacher Notes. These are located in the Teacher Console > eBooks > Grade 2 > 3 Ribbons

Once you click on the book, options will show up on the far right; click on the Teacher Notes.

Play video from “3 Ribbons” on the interactive whiteboard for the students. This is located in the Mathletics Teacher Console under eBooks. This will initiate the thought process based on a visual for computational learning. This is to start a discussion but not to solve the question. Students will have the opportunity to solve the question during the lesson.

Ask students for further extension to get them to start thinking about how they can solve the problem:
- Do you think that the shortest ribbon could be 80 cm long? Why or why not?
- Do you think that the longest ribbon could be 50 cm long? Why or why not?
- Could one ribbon be 5 cm long? Why or why not?
- Could one ribbon be twice as long as another?
- What strategy did you use to come up with solutions?
- Once have a solution, how could you use it to create another one?

ITEMS NEEDED
- Interactive whiteboard
- Mathletics teacher login
- Student Mathletics logins
- Teacher notes from “3 Ribbons”
- Student handout for “3 Ribbons”
- Math journals
- Computers/mobile devices

ASSESSMENTS
- Observation and participation
- Reviewing completed “3 Ribbons” student worksheet
- Reporting results within the Mathletics Teacher Console for curriculum and Live Mathletics results.

ACCOMMODATIONS/ MODIFICATIONS
- Provide students with ribbons for manipulative.
- Encourage students to click on “Something Easier” and “Something Harder” within Mathletics curriculum activities.

EXTENSION OF LEARNING
- Problem Solving Game under Subtraction
- Curriculum activities
- Live Mathletics Levels 1 and 2
The Lesson

**eBook: 3 Ribbons**

- Within the Teacher Console and the “3 Ribbons” eBook, click on “3 Ribbons” under Interactive on the far right. This can be displayed on the interactive whiteboard. Click on the See Question tab. Discuss some strategies students can use to solve the problem. Teachers can access Problem Solving strategies under eBooks, Problem Solving tab on the far right. Click on the Problem Solving tab; there will be three books to choose from. For grade 2, click on the Level 1 Problem Solving booklet.

- The strategies discussed in the Problem Solving eBook are; Read, plan, work and check; Draw a diagram; Look for patterns; Act it out; Trial and error; Make a list; Estimation; Work backwards; and Open ended. Discuss strategies with students and allow them to work in groups/pairs to solve the problem.

- **Reinforcement:** Using computers or mobile devices, students complete curriculum activities in the Student Console.

  **Suggested activities:**
  - Addictive Addition
  - Simple Subtraction
  - Subtract Numbers
  - Related Facts 1

- **Extra-time activity/cross-curriculum activity:** Mystery Number. Pick a two-digit number and create hints for students to figure out the number. Have the students create a poster displaying hints for what the number could be. Encourage students to use number sentences, pictures, or words. Teachers can implement rules such as: a minimum of 4 hints, you cannot use any numbers from your mystery number, has to be at least a 2 digit number, etc.

After the lesson

- Have the students reflect in their journals about the lesson.
- What strategies did they use?
- Which ones did they find to be helpful in solving this problem?
- Or create a “What stuck with you today?” board.
- Students write their responses on sticky notes and place them on this board.
- Review these sticky notes at the end of the week and share the process/thoughts with the class.
Outcome: P2.3

- Demonstrate understanding of equality and inequality concretely and pictorially (0 to 100) by:
  - relating equality and inequality to balance
  - comparing sets
  - recording equalities with an equal sign
  - recording inequalities with a not equal sign
  - solving problems involving equality and inequality

Items Needed

- Interactive whiteboard
- Mathletics teacher login
- Mathletics student logins
- Student handouts from eBooks
- Problem Solving page
- Classroom manipulatives
- Computers/tablets
- Math journals

Assessments

- Observation and participation
- Review completed worksheets
- Review journal responses

Accommodations/Modifications

- Allow student to access manipulatives to help create patterns.
- Create heterogeneous grouping.
- One-on-one with the teacher

Extension of Learning

- Problem Solving Games
- Curriculum activities
- Explore Rainforest Maths
- Live Mathletics

Introduction to Lesson

Ask students: When is something balanced? Unbalanced?

Prompt questions about weighing objects on a scale. Then have a class discussion about what they think or know about the terms equal and inequality. Display this on a whiteboard/poster paper. On the interactive whiteboard, go to

Mathletics Teacher Console > Demonstrations > Concept Search.

Search equal and unequal. These slides will display the definitions and symbols and give examples. Have the students brainstorm situations where they could use these symbols, or where they have seen them before.

Display examples on the board and have students figure out which symbol to use.
**The Lesson**

**Discover:** Hand out Problem Solving page from eBooks. This is located in Teacher Console > eBooks > Problem Solving > Level 1.

The worksheet is located under "Open-ended" worksheet 6. This worksheet will allow students to solve a problem about objects being balanced or equal. Have students record their answers. Open class discussion about answers and strategies.

**Extension questions:**
- What if we wanted to make the scale unbalanced or unequal?
- What if we doubled the pile of books?
- What pile of books can be added to balance it now?
- Can you recreate this problem using only numbers?
- What would that look like? What symbols can we use while solving this problem?

Ask students to flip the page over and create their own problem using pictures. They can create a problem about either equality or inequality.

**Explore:** Mathletics—Students can explore within Mathletics. The area they should focus on is Rainforest Maths, Grades 2 and 3, algebra; and Concept Search and Problem Solving games under Balance.

**Reinforcement:** eBooks—Students are to complete the pre-selected pages. Teacher can place manipulatives to help support various learning styles. Recommend: eBooks > Grade 2 > Patterns and Relationships, pages 18–25, and Grade 3 > Patterns and Algebra pages 13–18.

**Extra-time activity/cross-curriculum activity:** Students can create their own balance scale. This is created with a hanger, hanging a cup attached to string from each end of the hanger. Students can use various objects in the classroom and record what is equal and unequal.

**After the lesson**

**Review the symbols for equal and unequal. What strategies students use?**

**How can they use these symbols with numbers, words, pictures and sounds?**
LESSON PLANS: SASKATCHEWAN
Grade 2: Space and Shape

45 MINS

OUTCOME: SS2.3
• Describe, compare, and construct 3D objects, including:
  - cubes
  - spheres
  - cones
  - cylinders
  - pyramids.

ITEMS NEEDED
✓ Interactive whiteboard
✓ Mathletics teacher and student logins
✓ Student eBook pages from Grade 2, “Space and Shape”
✓ Shape manipulatives
✓ Math journals
✓ Computers/mobile devices

ASSESSMENTS
✓ Observation and participation
✓ Reviewing completed student worksheet
✓ Results from the Mathletics curriculum activities, located under Reports in Teacher Console
✓ Assessment from teacher eBook under Assessments; pages 44–49

ACCOMMODATIONS/MODIFICATIONS
✓ Provide Students with extra worksheets from Grade 1 “Space and Shape” or Grade 3 “Space, Shape and Position” about 3D shapes.
✓ Encourage students to click on “Something Easier” and “Something Harder” within Mathletics curriculum activities.

EXTENSION OF LEARNING
✓ Curriculum activities
✓ Explore more in Concept Search and Rainforest Maths
✓ Students can record 3D objects they come across over the next couple of days.

Introduction to Lesson

Teacher Background:
Prompt the question to the class, “What does three dimensional mean?” This will allow students to bring up their prior knowledge. Students can also fill out a KWL chart for further extension. On the interactive whiteboard, bring up

Mathletics Teacher Console > Demonstrations > Concept Search.

Click on Animated Maths Dictionary and search three dimensional. Discuss with the students the definition and the picture displayed. Click back on Concept Search within Demonstrations, and click on the Concept Search icon. Search 3D objects in the Search field on the top left side. It will bring up a few different slides. Click on the first slide displaying multiple objects. There are ten slides here, but not all will apply to the lesson (applicable slides are 2, 3, 5, 7). To further the extension, teachers can search each object in the Search field.

Ask students for further extension:
• What objects in the classroom have the same shape?
• How are these shapes similar or different?
• Why do you think these are 3D shapes?
• What could these shapes be used for (buildings, household products, etc.)?
LESSON PLANS: SASKATCHEWAN
Grade 2: Space and Shape

The Lesson

**eBook: Space and Shape**
- Referring to student pages 18–19 and 24–25, within the student eBook from Grade 2, “Space and Shape”. Students will work on these pages with partners. The pages indicate the items needed, in addition to shape manipulatives. After students have completed the pages, have them search the classroom for objects they believe to be 3 dimensional. They can record these objects in their journals. If there is time, show and share with the class.

- **Reinforcement:** Using computers or mobile devices, students complete curriculum activities in the Student Console. Suggested activities: Collect the Objects and Related Shapes and Solids; *Rainforest Maths*, grade 2, 3D shapes. Students can explore several different options here, including a quiz they can complete with a partner.

- **Extra-time activity/cross-curriculum activity:** Creating Shapes—Students can create 3D shapes using straws/toothpicks and play dough. They are to pick a shape and create it using the materials provided. This can be conducted as an individual or partner activity.

After the lesson

- Show two different objects and ask students how they are similar and different. They can refer to some of the strategies they used while completing the activities earlier. Have the students indicate the name for each of the objects they came across today (cube, sphere, cone, cylinder, pyramid). On the interactive whiteboard, bring up *Rainforest Maths* from the Teacher Console. Click on Grade 2, 3D shapes. Complete the quiz as a class.

- If students did not get a chance to complete the curriculum activities, you can assign them for homework. This feature is under the Results tab within the Mathletics Teacher Console.
Outcome: SP2.1
• Demonstrate understanding of concrete graphs and pictographs.

Teacher Background:
Ask the class what their favorite school subject is. Collect some data and discuss ways this can data can be displayed. Depending on the students’ prior knowledge, they might say charts, graphs, a picture, tallies.

Ask students what they think a pictograph is.
• Why would it be used?
• What kind of information can it display?

On the interactive whiteboard, go to
Teacher Console > Demonstrations > Concept Search > Animated Maths Dictionary.
Search the term pictograph, and discuss the definition. If students have individual journals or dictionaries, have them write down the definition.

On the interactive whiteboard, go to
Teacher Console > Demonstrations > Concept Search > Concept Search.
In the Search field, search pictograph. These are interactive slides. For the first slide, teachers can ask the class, “What items are in your lunchbox?” Click on the name of the fruit and it will be displayed within the chart. After the data is collected, ask the students questions based on the data that was just collected.

ITEMS NEEDED
✓ Interactive whiteboard
✓ Mathletics teacher login
✓ Mathletics student login
✓ Manipulatives
✓ Student handout from eBooks pages 14–16
✓ Math journals
✓ Computers/mobile devices

ASSESSMENTS
✓ Observation
✓ Participation
✓ Reviewing completed worksheets
✓ Reporting results within the Mathletics Teacher Console of for curriculum
✓ Graphs created by the students.
✓ Teacher assessments within the teacher eBook- Grade 1, “Data and Chance,” page 29

ACCOMMODATIONS/MODIFICATIONS
✓ Create centre groups according to heterogeneous grouping
✓ Encourage students to click on “Something Easier” and “Something Harder” within Mathletics curriculum activities.
✓ Print off student worksheets from lower or higher grades.
✓ Provide various manipulatives.

EXTENSION OF LEARNING
✓ Curriculum activities
✓ Extra worksheets from eBooks.
✓ Rainforest Maths: Grade 1—Data
The Lesson

Centres

• **Background for teacher**—Teachers can add more centres to the ones indicated below: for example, the main resource used in the classroom. For the eBook centre, please review which pages you would like the students to complete. Depending on how much work students can get done with each centre, rotation can occur about every 10 minutes. Groups will vary depending on class size.

  - **Centre 1**: Computers/tablets—Have students complete curriculum activities within the student Mathletics site. Suggested activities under Statistics and Probability: Who has the Goods, Pictographs, and Make Graphs.
  - **Centre 2**: eBooks—page 14–16 in the Grade 1 “Chance and Data” student booklet. Student can work in pairs or complete individually.
  - **Centre 3**: Creating a Graph—Have the students create their own question and collect their data within the classroom. Students then can display the data with manipulatives provided by the teacher. This centre is for the construction of concrete graphs. If students need help with a model, have them click on Concept Search within their Student Console and search pictograph.

• **Extra-time activity/cross-curriculum activity**: Collect Mathletics certificate data. Have the students collect the Mathletics certificates they earned. Brainstorm as a class on best way to display this data in the classroom. Students can create their own pictures of the certificates they earned and place it on the classroom chart.

After the lesson

• Have the students share with a partner beside them on what they learned today. Have them discuss key concepts, such as how they collect the data, what is a pictograph, how they created their graphs, did they find anything interesting in the data and so forth.

• Teachers can also close the lesson with a one page assessment. This is located in eBooks > Grade 1 > Chance and Data > page 29.
Outcome: N3.3
• Demonstrate understanding of multiplication to 5 x 5 and the corresponding division statements including:
  - representing and explaining using repeated addition or subtraction, equal grouping, and arrays
  - creating and solving situational questions
  - modelling processes using concrete, physical, and visual representations, and recording the process symbolically
  - relating multiplication and division.

Introduction to Lesson

Teacher Background:
Review the Teacher Notes located in Teacher Console > eBooks > Grade 3 > Build a Number.
Click on the book. Options will show up on the far right. Click on Teacher Notes.

Play video from “Build a Number” on the interactive whiteboard for the class. This is located in the Mathletics Teacher Console under eBooks. During the video, pause and discussed the key words, which are underline in red. If students are not aware of the fraction of 1/4, please clarify. This is to start a discussion but not to solve the question. Students will have the opportunity to solve the question during the lesson.

Ask students for further extension to get them to start thinking about how they can solve the problem:
• Were you free to choose the number of flats?
• How about the number of rods?
• Why did the number of rods have to be even?
• What did you notice about the number of unit blocks?

ITEMS NEEDED
✔ Interactive whiteboard
✔ Mathletics teacher and student logins
✔ Teacher notes from “Build a Number”
✔ Base ten blocks
✔ Student handout for “Build a Number”
✔ Math journals
✔ Computers/mobile devices

ASSESSMENTS
✔ Observation and participation
✔ Reviewing completed “Build a Number” student worksheet
✔ Reporting results within the Teacher Console of Mathletics for curriculum

ACCOMMODATIONS/ MODIFICATIONS
✔ Provide manipulatives.
✔ Encourage students to click on “Something Easier” and “Something Harder” within Mathletics curriculum activities.
✔ Teacher can work with a small group of students.

EXTENSION OF LEARNING
✔ Rainforest Maths activities within Grade 3, Number
✔ Curriculum activities
✔ Live Mathletics Levels 3 and 4
THE LESSON PLANS: SASKATCHEWAN

Grade 3: Number

The Lesson

30 MINS

eBooks: Build a Number

• Provide students with the “Build a Number” student handout. Teachers can provide students with the base ten blocks sets as well. Have the students come up with as many possible solutions as possible. If students need help with ways to solve this problem, teachers can review the Problem Solving booklets within eBooks. The strategies discussed in the Problem Solving eBooks are; Read, plan, work and check; Draw a diagram; Look for patterns; Act it out; Trial and error; Make a list; Estimation; Work backwards; and open ended.

• Within the Teacher Console and the “Build a Number” eBook, click on the Interactive on the far right. This can be display on the interactive whiteboard. Double click on each base ten block on the left side and it will be added to the centre of the screen. Have the students come up and share some of the solutions they found, along with a strategy they used to solve this problem. As each group comes up and shares, click the Store button, which will store the solutions on the right side. After all the groups have shared, review all the solutions.

• Reinforcement: Using computers or mobile devices, students complete curriculum activities in the Student Console. Suggested activities: Model Numbers, Place Value to Thousand, Fill the Jars, Share the Treasure, Multiplication arrays.

• Extra-time activity/cross-curriculum activity: Number Cubes—Students can play a game using 2 or 3 dice. Students roll the dice and they are to decide what symbol they will use to add or multiply. They will display the answer using the base ten blocks and have the partner figure out what symbol they used. For example, a student rolls three dice and gets the number 3,4,2. Students can add or multiply the numbers and display the sum using the base ten blocks.

After the lesson

5 MINS

• Have the students reflect in their journals about the lesson. What strategies did they use? Which ones did they find to be helpful to solve this problem? Or create a “What stuck with you today?” board.

• Students write their responses on sticky notes and place them on this board.

• These can be reviewed at the end of the week and the process/thoughts can be shared with your students.
LESSON PLANS: SASKATCHEWAN

Grade 3: Pattern and Relations

45 MINS

Outcome: P3.1
- Demonstrate understanding of increasing and decreasing patterns including:
  - observing and describing
  - extending
  - creating patterns using manipulatives, pictures, sounds, and actions.

Introduction to Lesson

Teacher Background:
Provide students with manipulatives and ask them to create patterns. Ask what kind of patterns they can create. Give students some time to create and discuss their patterns.

On the whiteboard, write down the term increasing patterns and ask what they think this term might mean. How can we create increasing patterns or growing patterns? Create a pattern on your interactive whiteboard showing the first two figures and ask if they know how to find the next two figures.

ITEMS NEEDED
- Interactive whiteboard
- Mathletics teacher and student logins
- Teacher notes from “Build a Number”
- Base ten blocks
- Student handout for “Build a Number”
- Math journals
- Computers/mobile devices

ASSESSMENTS
- Observation and participation
- Reviewing completed “Build a Number” student worksheet
- Reporting results within the Teacher Console of Mathletics for curriculum

ACCOMMODATIONS/MODIFICATIONS
- Provide manipulatives.
- Encourage students to click on “Something Easier” and “Something Harder” within Mathletics curriculum activities.
- Teacher can work with a small group of students.

EXTENSION OF LEARNING
- Rainforest Maths activities within Grade 3, Number
- Curriculum activities
- Live Mathletics Levels 3 and 4
The Lesson

Centres

• **Background for teacher**—For the eBook centre, please review which pages you would like the students to complete. Depending on how much work students can get done with each centre, rotation can occur about every 10 minutes. Groups will vary depending on class size.

  o **Centre 1: Rainforest Maths**—On the interactive whiteboard, show Teacher Console > Demonstrations > Rainforest Maths, Grade 3, Algebra, Patterns, 10s, 100s, and other number patterns. These show patterns found using numbers. Have students take turns answering the questions on the whiteboard. Students record the questions and answers in their journals.

  o **Centre 2: Computers/tablets**—These activities are located in the Mathletics Student Console under the Patterns and Relations curriculum activities. Suggested activities: Counting Forward Patterns and Increasing Patterns.

  o **Centre 3: eBooks**—Students are to complete the pre-selected pages. Teachers can place manipulatives to help support various learning styles. Students can complete in pairs or individually, recommended pages 1–9.

• **Extra-time activity/cross-curriculum activity:** Things That Grow—Students create artwork of things that grow. Students can paint or use construction paper to display this artwork. They are to create a few stages of the thing to show how it is growing. For example, a student can display the first stage of a flower growing without petals, the next image with 3 petals, the next with 6 petals, and so forth.

After the lesson

• Discuss some of the patterns students came across during today’s lesson.

• What are some strategies they used to help solve the questions?

• Exit card: Have each student create an increasing body percussion pattern as they leave the room.
**Outcome: SS3.4**
- Demonstrate understanding of 3D objects by analyzing characteristics including faces, edges, and vertices.

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**Introduction to Lesson**

**Teacher Background:**
Recall prior information by having a class discussion about 3D objects and their characteristics. To prompt students’ prior learning, ask questions like, I am shaped like a soccer ball, or, I have a pointy top and I can roll. On the board, write down faces, edges, and vertices.

On the interactive whiteboard, go to **Teacher Console > Demonstrations > Concept Search.**

Click on **Concept Search** and search the words, edges, faces, vertex. Each slide will give a definition along with pictures. Discuss while viewing all slides, or have students write down the definitions in the math dictionaries.

**Questions to ask:**
- How are they similar or different?
- What 2D shapes do you see in these objects?
- How can you describe a face, edge, or vertex to a partner?
- How many vertices, edges, and faces does a sphere have? Cylinder? Cone?

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**ITEMS NEEDED**
- Interactive whiteboard
- Mathletics teacher and student logins
- eBook student pages from Grade 3 "Shape, Space and Position"
- Shape manipulatives/nets
- Math journals
- Computers/mobile devices

**ASSESSMENTS**
- Observation and participation
- Reviewing completed student worksheets
- Results from the Mathletics curriculum activities, located under Reports in Teacher Console

**ACCOMMODATIONS/MODIFICATIONS**
- Provide students with manipulatives
- Provide students with extra worksheets from grade 2 or grade 4 eBooks about 3D shapes.
- Encourage students to click on “Something Easier” and “Something Harder” within Mathletics curriculum activities.

**EXTENSION OF LEARNING**
- Curriculum activities
- Explore more in Concept Search and Rainforest Maths
- Live Mathletics
LESSON PLANS: SASKATCHEWAN

Grade 3: Space and Shape

The Lesson

Rainforest Maths

• **Investigate:** “Rainforest Maths”—Students are to investigate further within Rainforest Maths. Have students work in partners.
  - Teachers can encourage students to record their information in the math journals.
  - Direct them to click on Rainforest Maths > Grade 3 > 3D shapes.
  - There are several options for them to explore. Students can review 3D shapes first by clicking on the 3D and about icons on the left side and then carrying on with the other areas.
  - After students have had time to explore, have them share with the class the information they found.

• **Apply:** eBooks—Students complete the student pages within the eBooks > Grade 3 > Shape, Space and Position. Recommended pages are 14–24.

• **Reinforcement:** Using computers or mobile devices, students complete curriculum activities in the Mathletics Student Console.
  - Suggested activities: Relate Shapes and Solids; Faces, Edges and Vertices; Prisms and Pyramids; Count Sides and Corners.

• **Extra-time activity/cross-curriculum activity:** Nets—Students can create 3D nets to further their extension. Students can label and record all the edges, faces, and vertices.

After the lesson

• Hold up objects found in the classroom and have the students identify where the edges, vertices, and faces are.
• Have students bring in disposable three-dimensional objects from home. Students will disassemble the objects. This will allow students to view the structure of these objects and analyze the edges, faces, and vertices.

For more information contact our friendly team...
Email: customerservice@3plearning.ca | Tel: +1 877 467 6851
Outcome: SP3.1
• Demonstrate understanding of first-hand data using tally marks, charts, lists, bar graphs, and line plots (abstract pictographs), through:
  - collecting, organizing, and representing

Introduction to Lesson

Teacher Background:
This lesson will allow students to research, collect, record, and share data. Please have various resources for the students to explore along with their student Mathletics accounts.

If you have not introduced the term data, you can explore the concept in Concept Search. Ask the class:
• What are some ways we can display data?
• How can we collect the data?
• What are some types of graphs?

The graphs the students are going to research are tally tables, charts, lists, bar graphs, and line plots. Have the students fill out a KWL chart before they start.

ITEMS NEEDED
✓ Interactive whiteboard
✓ Mathletics teacher login
✓ Mathletics student logins
✓ Classroom manipulatives
✓ Computers/tablets
✓ KWL chart handout
✓ Resources for students to explore

ASSESSMENTS
✓ Observation
✓ Participation
✓ Group work
✓ Completion of the research project
✓ Reviewing the KWL chart
✓ Extra assessments within the "Chance and Data" teacher eBook, pages 26–32.

ACCOMMODATIONS/MODIFICATIONS
✓ Create heterogeneous grouping and assigning students certain roles.
✓ Provide students with certain resources to limit research.
✓ Provide visual models of the graphs and questions.

EXTENSION OF LEARNING
✓ Grade 3 "Chance and Data" eBook, pages 10–21
✓ Curriculum activities
✓ Explore Rainforest Math (Grade 3: graphs).
The Lesson

Research

• **Background for teacher**—The first part of the lesson will introduce the graphs/charts that students will research. In the second part of the lesson, students will collect and create a chart based on the charts they research.

• **Before starting the lesson**: Discuss ways students can display their research, such as posters, journals, pictures. For this project, teachers can implement requirements that students need to fulfill: for example they need to define all the charts, must have pictures, and decide what data is best represented in each chart. Students can work in pairs or groups.

  o For the research, students can explore within the Mathletics Student Console in Concept Search and Animated Maths Dictionary. Student can also access other resource in the classroom, such as the main math resource.

  o In the second part of the lesson, students will collect data and represent it in one of the charts they researched. They must create a question about Mathletics.

  **For example:**
  - What is your favorite parts of Mathletics?
  - What is your favorite item to buy with credits?
  - What countries have you played against in Live Mathletics?
  - What Times Table Toons video do you like the most?
  - What types of certificates have you earned?

• **Reinforcement**: Students can work on curriculum activities within Mathletics. Suggest activities are: Tally Charts, Column Graphs, Reading from a Column, Sorting Data, Making Graphs, Bar Graphs 1.

• **Extra-time activity/cross-curriculum activity**: Provide each group of students with a bag of M&M’s or Skittles. Have the students sort and display their data in the graph they think would work best.

After the lesson

• Discuss with students what some interesting facts are that they learned during their research. Do they have similarities or differences? Review the charts names and the key differences. Students can finish KWL chart.
Lesson Plans: Saskatchewan

Grade 4: Number
Money

Outcomes: N4.7
- Demonstrate an understanding of decimal numbers in tenths and hundredths (pictorially, orally, in writing, and symbolically) by:
  - describing
  - representing
  - relating to fractions.

Items Needed
- Mathletics teacher login
- Interactive whiteboard
- Mathletics eBooks
- Marian Small’s “Coin Count” eBook
- Dice
- Coin manipulatives
- Sample of real coins

Assessments
- Participation and group work checklist

Accommodations/Modifications
- Change monetary values to accommodate various learners.
- Use as centres for kinesthetic learners.
- Use ability groups and modify coin count problem to calculate change with easier or more difficult value.

Extension of Learning
- Mathletics eBook: “Addition and Subtraction” money handouts
- Give students flyers from local grocery stores. Have students plan a meal (health) and determine how much that meal would cost. How many different ways could they pay for it?

Introduction to Lesson

Teacher Background:
Log into your Teacher Console > Demonstrations > Concept Search.
Type money into your Search bar. Other suggested words are: coins, cents, equivalent, and dollar. Review these words with students and add to your math word wall or math journals.

Play Marian Small’s video, “Coin Count Problem” found in Teacher Console > eBooks > Grade 4 > Marian Small’s Coin Count > Videos > Coin Count.
Pause during the video to explain each monetary value. Pause at the end of the video and have students come up with as many answers as they can in their table groups. Use the Teacher Notes for questions to prompt students.
The Lesson

Coin Count Problem:
- Use eBooks > Grade 4 > Marian Small's Coin Count > Interactives > Coin Count. Display problem on interactive whiteboard.
- Use Printable Problem with cut-and-paste coins for students to follow along.
- Have students work in partners or groups to solve the problem in as many ways as they can.
- Try changing the problem and have students determine a new answer. In the Teacher Notes, the Extension of Learning section has a new problem-solving question to use.

High Life Mathletics Problem Solving Game:
- Open “High Life” Mathletics Problem Solving game. Sign into Mathletics Teacher Console > Demonstrations > Problem Solving > Money > High Life.
- Work through the problem-solving activity together, calculating money and introducing change. Explain to students when we pay for something we have to give money of a certain value (which may be represented in many different ways) and then we receive change in return. Ask students, What coins or bills could we use to make this change? What if we only had coins and no bills? Suppose you have 4 nickels, how many dimes would you need? How many quarters? What is this worth?

Calculate the Change:
- Using the Grade 4 Mathletics eBook - Addition and Subtraction. From Problem Solving Game - Click home in top left hand corner eBooks > Grade 4 > Addition and Subtraction Click on Money Section > Page 40 and 41. Print game sheets to give to students. Each partner/group will need two dice.
- Students roll the dice and using the number they roll, they need to determine how much change would be given according to the problem. Winner has the most money at the end of the game.

After the lesson

Think, Pair, Share
- Think about how often we use money. When would we have to make change?
- Pair up with a person of the opposite sex.
- Share your real-life experience of using money.
**LESSON PLANS: SASKATCHEWAN**

Grade 4: Pattern and Relations

**Pattern Rules**

**45 MINS**

**ITEMS NEEDED**
- Mathletics teacher login
- Interactive whiteboard
- Mathletics eBook handouts
- Hundreds charts
- Counters
- Marian Small handouts

**ASSESSMENTS**
- Have students write out their reflections.
- Participation
- Collect and assess Marian Small handout.

**ACCOMMODATIONS/ MODIFICATIONS**
- Teacher can choose to use the Interactive instead of the handout.
- Change number to skip count by to determine easier or harder patterns.
- Encourage students to use hundreds charts or number lines for skip counting and determining pattern rules.

**EXTENSION OF LEARNING**
- Suggested curriculum activities: Missing Numbers, Missing Values, Venn Diagram 1, Find the Missing Number 1
- Rainforest Maths, Grade 4: Patterns.

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**Outcome: P4.1**
- Demonstrate an understanding of patterns and relations by:
  - identifying and describing patterns and relations in a chart, table or diagram
  - reproducing patterns and relations in a chart, table, or diagram using manipulatives
  - creating charts, tables, or diagrams to represent patterns and relations
  - solving problems involving patterns and relations.

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**Introduction to Lesson**

**I am Thinking of a Number!**
- To encourage students to begin thinking about patterns, introduce the activity I am Thinking of a Number! in the Grade 4 Saskatchewan curriculum under the Patterns and Relations strand. Display this activity on the interactive whiteboard. You can work through all 10 questions, or as many as you see fit with students.

  **Ask students prompting questions:**
  - What function are you using to determine the number?
  - Is your number increasing or decreasing?
  - If we were to make a pattern, what rule could we use?

- To build on students’ knowledge, display the curriculum activity Pick the Next Number.

  **Ask students:**
  - What rule could be given to this pattern?
  - Is you pattern increasing or decreasing?
  - How do you know?
  - If the pattern was 10 numbers, could we determine the last number in the sequence?
  - How would you describe this pattern?
The Lesson

**eBook: Describing Patterns in a Hundreds Chart**
- On the interactive whiteboard, log in to your Teacher Console > eBooks > Grade 4 > Patterns and Algebra, page 3, Patterns and functions. Show students the hundreds chart. If you have a hundreds chat in the classroom, you could use this as well. **Ask students:** Can we skip count using a hundreds chart? What could we skip count by? Shade the numbers in as you skip count.
- Using the questions on page 3, skip count together using the hundreds chart. Students should look at the hundreds chart and investigate what patterns they see. Students can follow along using their own hundreds chart.
  **Ask students:** What patterns can you begin to see? Are the patterns increasing or decreasing? Can you see other patterns beside horizontally? What could be the pattern rule? What could the next numbers in the pattern be? Look at all 4 hundreds charts and discuss how the patterns are similar and how they differ.

**Odd or Even Apex? Marian Small Video**
- Play the Marian Small video through the Teacher Console by going to eBooks > Grade 4 > Odd or Even Apex? > Video. Play the video once through from beginning to end, allowing students to formulating their own ideas. Play the video again, pausing to ask the prompting questions that are throughout the video. Allow students time to investigate in their groups and determine a pattern rule. **Ask students:** Why is it difficult to determine a pattern rule? What do we have to consider when creating a pattern rule? What happens if the 3 base numbers are changed? Discuss what strategies and reasoning students used and developed to determine their patterning rules.

**Marian Small Interactive/Handout**
- Print the Marian Small student handout from the same eBook as above. Have students begin to work through their own patterns and write out their patterning rules. On the interactive whiteboard, the teacher can use the interactive problem with a guided math group while others are working on the handouts, or can do a whole-class discussion and begin generating ideas before students do work independently.

After the lesson

**Discussion Questions:** Teacher can use his/her discretion and have whole-group or table-group discussions. **Questions to discuss:** Where can you see number patterns in real life? How do all the patterns relate that you did today? Was the hundreds chart or the number pyramid an easier way to see a pattern? What did you do when you were trying to determine a pattern rule?
LEsson PlAns: sASKATCHEwAN

GRowd 4: sApce and ShApes

Reading and Using a 24-Hour Clock

50 MIns

Outcome: SS4.1
• Demonstrate an understanding of time by:
  - reading and recording time using digital and analog clocks
    (including 24 hour clocks).

ITEMS NEEDED
✓ Interactive whiteboard
✓ Mathletics teacher login
✓ Student handouts from eBooks
✓ Computers/tablets
✓ 12-hour and 24-hour clocks

ASSESSMENTS
✓ Observations
✓ Collaborative/groupwork
✓ Collect and assess time wheel.

ACCOMMODATIONS/
MODIFICATIONS
✓ Allow students to make their own clocks with both 24-hour and 12-hour time intervals. Students can use this as a math manipulative.
✓ Encourage students to click on “Something Easier” and “Something Harder” within the Mathletics curriculum activities.

EXTENSION OF LEARNING
✓ Measure time in phys.ed and record with a stopwatch. Students can then determine total elapsed time to complete an activity.
✓ Grade 4 and Grade 5 time section in Rainforest Maths for extra practice.

Introduction to Lesson
10 MINS

Teacher Background:
Students should be familiar with reading and using a 12-hour clock prior to this lesson.

• Display the word time on interactive whiteboard. Have students write down all of their ideas about time on chart paper. They can draw pictures or write words and numbers to represent what time means to them.

Prompt students:
• How do we measure time?
• What types of time are there?
• When/Where do we use time?
• Discuss a variety of answers. Introduce 24-hour time and when we generally measure time using the 24-hour clock.

• Log in to the Teacher Console > Demonstrations > Concept Search.

Type time into the Search bar. Display the 12-hour clock on the interactive whiteboard and review with students. Then click on the 24-hour clock, and explain how to convert the time.

Ask students questions like,
• What type of activity would you do at 18:00?
• What types of activities would you not do at 23:00?
• What could be done between 9:00 and 13:00?
• How much time has elapsed?
The Lesson

**eBook: 24-Hour Time Dominoes Game**
- Have students work in partners, or play this game as a class.
- Print off the 24-hour dominoes game cards by logging in to your Teacher Console > eBooks > Grade 5 > Time.
- Print page 8, “24-hour time dominoes game.”
- One student is the caller, or the teacher can be the caller.
- The other partner or the class will write down 6 times.
- They must be o’clock or half-past times, no other intervals.
- The caller or teacher then shuffles the cards and calls out the times.
- The first person to cross out all 6 times wins!
- You could call the times out in 12-hour clock time, and students will need to convert the time to the 24-hour times they have chosen.

**Collaborative Group Work**
- **Group 1—Live Math**
  Students should try Levels 5 and 6 of Live Mathletics on their own accounts, or on a classroom computer under the teacher account. One student types while the other group members shout out the answers. These levels include time conversion.
- **Group 2—Time Activities**
  Students should work on curriculum activities. Suggested activities in the Saskatchewan Grade 4 course: What is the Time?, 24-hour Time, Five Minute Times, Quarter to and Quarter past.
- **Group 3—eBook Handouts**
  - **Option 1:**
    Students work together on eBook > Grade 5 > Time, Measuring time, page 5, question 6. Print or on show on interactive whiteboard.
  - **Option 2:**
    Students who still need some additional practice with 12-hour clocks can use eBook > Grade 4 > Time, Telling time section or Time, Measuring time section.

After the lesson

**Think, Pair, Share**
- Have students reflect on what they have learned about time with another partner. Give students a few minutes to think, pair up with another partner, and share their learning.
- Prompt question: How did you measure time today? What were your challenges with a 24-hour clock?
Outcome: SS4.4
- Demonstrate an understanding of line symmetry by:
  - identifying symmetrical 2D shapes
  - creating symmetrical 2D shapes
  - drawing one or more lines of symmetry in a 2D shape.

Introduction to Lesson
Teacher Background:
Students should log into their own Student Consoles on laptops or in the computer lab. Introduce the topic of symmetry. Have them explore Mathletics to investigate and determine what it means for a shape to be symmetrical or non-symmetrical. Then, introduce the term parallel. Have students investigate this term and discuss in their table groups what it means for a shape to have parallel sides.

Ask prompting questions:
- How do you know if a shape is symmetrical?
- How could we test this?
- What would make a shape non-symmetrical?
- What shapes have parallel sides?
- What does this mean?
- How can you determine what shapes do not have parallel sides?
- Have students explore 2D quadrilaterals and 3D shapes.

Items Needed
- Mathletics teacher login
- Interactive whiteboard
- Mathletics eBooks
- Dot paper
- Rulers
- Paper for folding
- Computers/tablets

Assessments
- View “Are you ready?” results for a pre-assessment of learning.
- Check Results section for curriculum activity marks.
- Group work and participation.

Accommodations/Modifications
- Ability/levelled groups.
- Encourage students to use the “Something Easier” or “Something Harder” options when completing curriculum activities.

Extension of Learning
- Art: Draw a picture that is symmetrical using only 2D shapes.
- Grade 4: Shape, Space and Position
The Lesson

Centres
• Teachers can add more centres to the ones indicated below: for example, the main resource used in the classroom. For the eBook centre, please review which pages you would like the students to complete. Depending on how much work students can get done with each centre, rotation can occur about every 10 minutes. Groups will vary depending on class size.

  o Centre 1: Symmetry Folding—Print out page 8 of eBooks > Grade 4 > Space, Shape and Position, page 8. Students should have two copies of this page. For question 1, students need to cut out the shapes and fold in half as many times as they can. They can then draw as many lines of symmetry as the shape has on their second copy of that page. Ask students: Can we fold the shape anyway we want? Why do we have to fold it in half? How do you know this is a line of symmetry? What makes it symmetrical? If there is time, have students complete the symmetrical challenges on page 9 of the same eBook.

  o Centre 2: Math Journals/Word Wall Creation—Have students log into their Student Consoles and look up symmetry, parallel, perpendicular, 2D shape, vertices, edges, transformation, tessellation, rotation, etc. in Concept Search and Animated Maths Dictionary. If using journals, students should write down their own definition of the word, an example, and a picture. If journals are not used in your classroom, students can generate a word wall of specific terms and concepts that will be covered during this unit. Each group can be responsible for 1–3 words to look up on Mathletics, and find a definition, example, and picture to add to the word wall. Note: If laptops are not available for all students, have groups explore these concepts on the interactive whiteboard using the teacher login.

  o Centre 3: Rainforest Maths/Activities—Students should log into their Student Console and work in Rainforest Maths for review and practice. Have students work on Grade 3 for review, and then try Grade 4: 2D shapes. On the left-hand side, there are different sections they can try. Once they feel comfortable, students should begin completing some activities in Shape and Space. Suggested activities: Are you Ready?, Symmetry, Faces, Edges and Vertices 1. This will give you a good understand of where students are currently at and allow students to practice what has been introduced today.

After the lesson

• Students should find objects in the classroom that have lines of symmetry.
• Have them trace with their hands where the line of symmetry could be.
• Challenge students by asking them: Can you find an item that has more than 1 line of symmetry? What shape could it be? Can you find an irregular polygon? Do you think this shape/object will have a line of symmetry? Where can you find symmetry on your body? Is it perfect symmetry?
Outcome: SS4.2
- Demonstrate an understanding of area of regular and irregular 2D shapes by:
  - recognizing that area is measured in square units
  - selecting and justifying referents for the units cm² or m²
  - estimating area by using referents for cm² or m²
  - determining and recording area (cm² or m²)
  - constructing different rectangles for a given area (cm² or m²) in order to demonstrate that many different rectangles may have the same area
  - drawing one or more lines of symmetry in a 2D shape.

Introduction to Lesson

Teacher Background:
Log into your Teacher Console > Demonstrations > Concept Search.
Type perimeter and area into your Search bar. Have students determine the difference between the two terms.

Ask students:
- When would we need to measure perimeter?
- When would need to know the area of something?
- How could we measure the perimeter of our classroom?
- What units of measurement would work best?

Students should write perimeter and area with definitions in their math journals or add to a Math Word Wall.

ITEMS NEEDED
- Mathletics teacher login
- Interactive whiteboard
- Mathletics eBooks
- Ruler
- Geoboards
- Graph paper
- Blocks

ASSESSMENTS
- Collect and assess “Claim your Path” group handouts.
- Check Results section for curriculum activity marks.

ACCOMMODATIONS/ MODIFICATIONS
- Ability/levelled groups
- Encourage students to use the “Something Easier” or “Something Harder” options when completing curriculum activities.

EXTENSION OF LEARNING
- Have students draw a room with its dimensions. Students should include pictures, rugs, windows, and other objects where the perimeter and area can be determined.
- Rainforest Maths: additional area and perimeter practice. Encourage students to try a grade level above or below based on their ability.
The Lesson

Perimeter Word Problem with Geoboards
• Log into your Teacher Console > eBooks > Grade 4 > Length, Area and Perimeter, Perimeter section, page 12. Hand out students’ geoboards and the printed handout from the eBook. Have students start working through the word problems by creating polygons on their geoboards.

  For further practice ask students: If the perimeter of a polygon was 25cm, what shape could it be? What would be the lengths of the sides? How many sides does your polygon have? What shape could it not be? How do you know?

Area: Square Centimeters
• Handout grid paper to students. Students can use their pencils to shade in irregular polygons, or they can use blocks to fill in the shape. Use page 16 in the Area section of the same eBook used for the Perimeter activity. Display the questions on the board and have students create as many different shapes with the proposed area as they can.

  Prompt students by asking: How many different polygons can have an area of 8 square centimetres? What if all sides had to be equal in length? Can you make an irregular polygon? What would the area and perimeter be of one of your polygons?

Problem Solving: Claim Your Patch
• Students need to be in groups of 4 for this problem-solving activity. You will need to go to eBooks > Problem Solving > Level 2 Logical reasoning, Worksheet four. Print out one playing card per group. Students’ task for this game is to create polygons with an area greater than 1 but less than 13 and a perimeter of 20cm. Students will need to use their problem-solving skills to determine what different shapes could be made. Each person in the group should use a different colour to draw their shapes. The teacher can click on Demonstrations > Rainforest Math > Grade 4 area. Draw your own shapes and display them on the interactive whiteboard. Students who are having difficulty can work one-on-one with the teacher to determine different polygons. Students are able to draw the shapes on graph paper and interactively determine area and perimeter.

After the lesson
• Have students begin working on assigned tasks.
• Suggested activities to assign for students to complete: Area of Shapes and Equal Areas.
• These are good activities for an introduction to area.
• Once students have completed both activities, they can play the Problem Solving game Making Tracks.
LESSON PLANS: SASKATCHEWAN

Grade 5: Number
Using Pattern Blocks to Teach Fractions

45 MINS

Outcome: N5.5
- Demonstrate an understanding of fractions by using concrete and pictorial representations to:
  - create sets of equivalent fractions
  - compare fractions with like and unlike denominators.

Introduction to Lesson
10 MINS

Teacher Background:
- Play Dr. Marian Small’s “Pattern Blocks” video to introduce pattern blocks and discussion around fractions. Log in to Teacher Console > eBooks > Grade 5 > Marian Small’s Pattern Blocks #1. Click on the Pattern Blocks #1 Video. Pause during the questions asked in the video. Discuss various responses.
- Hand out pattern blocks to students, as a manipulative to begin thinking about how they could create a shape with that is one half yellow. Display Pattern Blocks in Concept Search for an added visual for students.
- In your Teacher Console, click on Demonstrations > Concept Search > Search Pattern Blocks in search bar. Have students begin to manipulate the blocks and create different fractional numbers.

ITEMS NEEDED
- Interactive whiteboard
- Mathletics teacher login
- Marian Small’s printed student problems
- Pattern block manipulatives
- Laptops

ASSESSMENTS
- Observation of students working together to create fractions
- Participation in interactive

ACCOMMODATIONS/ MODIFICATIONS
- Can practice easier/harder activities
- Can use Rainforest Maths at a level below or above

EXTENSION OF LEARNING
- Search number lines and/or fractions in Concept Search. Show students how to use a number line to represent and compare fractional amounts.
- Students can have extra practice in Rainforest Maths, Grade 5, Fractions. Students can extend their learning of fractions, and practice questions for reinforcement.
The Lesson

Interactive Pattern Blocks—Marian Small’s Activity

- Hand out printed Marian Small’s Student Problem: Pattern Blocks. Log in to Teacher Console > eBooks > Grade 5 > Marian Small’s Pattern Blocks #1 > Student Problem > Print. Have students work together to complete the question. Students can work in partners or small groups to determine various answers. Give students enough time to explore various possibilities and use a variety of different shapes, patterns, and numbers of blocks.

- Display Interactive problem on the interactive whiteboard. In your Teacher Console, click on eBooks > Grade 5 > Marian Small’s Pattern Blocks #1 > Interactive Problem. Students can then come up to the interactive whiteboard and display their answers. Discuss with students how there are various answers to this problem. Fractions can be represented in a variety of ways.

  Ask Students,
  - What would happen if we could only use red and yellow blocks?
  - How could we represent ½ using the fewest blocks?
  - What different colour combinations could you use?

NOTE: Try Extension of Learning task to introduce Fractions on a Number Line, if students are grasping this concept well.

Reinforcement: Equivalent Fraction Activities

- Assign curriculum activities for students to complete in the Student Console. Suggested activities include Shading Equivalent fractions, Equivalent fractions, Equivalent Fractions 1, Comparing Fractions 1, Comparing Fractions 2, Simplifying Fractions, and Equivalent Fractions on a Number line 2.

- Students can use Rainforest Maths, Grade 5, Fractions section for extra practice. It can also be displayed on the interactive whiteboard for students to reference while completing their assigned tasks.

Extra-time/cross-curriculum activity: Have students create fraction art. Have students represent a fractional amount and show an equivalent fraction. Students can represent their fractions using paper and glue, drawing pattern blocks, constructing two real-life objects, etc.

After the lesson

- Play a game of Live Math as a whole class. Log in to your Teacher Console and click on Demonstrations > Live Math > Level 6 > World > Go. Level 6 has some fraction computation questions.
- Have students complete an “Exit Slip” card. They need to complete this before leaving class.
LESSON PLANS: SASKATCHEWAN
Grade 5: Pattern and Relations
Repeating Patterns

45 MINS

Outcome: P5.1
• Represent, analyse, and apply patterns using mathematical language and notation.

ITEMS NEEDED
• Interactive whiteboard
• Mathletics teacher login
• Student handouts from eBooks
• Computers/tablets
• Toothpicks
• Chart paper
• Markers
• Geometric pattern blocks

ASSESSMENTS
• Observations
• Collaborative/group work
• Assess patterns on chart paper
• Assess patterns made with toothpicks

ACCOMMODATIONS/ MODIFICATIONS
• Allow students to make use of translucent geometric pattern blocks to help create their patterns.
• Encourage students to click on “Something Easier” and “Something Harder” within Mathletics curriculum activities.

EXTENSION OF LEARNING
• Curriculum activities
• Grade 5 eBook: “Patterning and Algebra,” Patterns and functions, additional pages.
• Grade 5, Number Sequences section in Rainforest Maths for extra practice

Introduction to Lesson

Teacher Background:
• Give students a blank piece of paper. Have students create as many different number patterns as they can. Their number patterns can increase or decrease. Students can create geometric or numeric patterns. Have students represent number patterns in as many ways as they can, working collaboratively in their table groups.
• Students should use mathematical language and notation.
LESSON PLANS: SASKATCHEWAN
Grade 5: Pattern and Relations
Repeating Patterns

The Lesson

Collaborative Group Work

• Group 1—Matchstick Problems
  Print student handouts from the Mathletics eBooks > Grade 5 > Patterns and Algebra, Patterns and functions, Matchstick patterns, page 5 and 6. Have students use toothpicks to practice making a repeating geometric pattern. Students can complete a few of the tables found on these handouts. Ask students to then use the toothpicks to create their own geometric pattern and determine the function rule. Students should work together to create their pattern and glue it onto cardstock, displaying their rule at the bottom. These can then be displayed around the classroom for future reference.
  
  Note: Students can also experiment with growing and shrinking patterns. Can students add on to their existing shape? What do you notice happening in the pattern? What type of pattern is this? What pattern/function rule could you use? How would this be expressed in mathematical terms?

• Group 2—The Odd One Out
  On the interactive whiteboard, log in to your Teacher Console > Demonstrations > Curriculum activities > The odd one out activity. Have students practice locating and recognizing the pattern occurring with the geometric shapes. After working through the questions, working collaboratively in their groups, students should create their own repeating patterns based on shapes or colours only. Have students create these on chart paper and circle the odd one out (the geometric shape or colour that does not fit), explaining the rule at the bottom.
  
  • With collaborative group work, students should be working together to come to a conclusion. All members of the team should be communicating and contributing to the groups mark. You can have students switch groups once they have completed one task, and instruct students to complete the second task. This time should allow for both tasks to be completed.

After the lesson

Discussion

• Have a quick discussion with your students about repeating patterns. Prompting questions: Where have you seen geometric patterns in real life? How do we grow or shrink a pattern? Where have you seen a numerical pattern? How did you know the function rule? What is difficult about determining a function/pattern rule?
Outcome: SP5.3
• Describe, compare, predict, and test the likelihood of outcomes in probability situations.

Introduction to Lesson

What is probability?
• Take a few minutes to begin a discussion around probability. Create a KWL chart with students to determine what they already know about probability and what they would like to learn. On the interactive whiteboard or individually, look through Concept Search. Log in to your Teacher Console > Demonstrations > Concept Search. Suggested terms to search are: probability, chance, random, spinner. Add these words to your Math Word Wall or math journal.
• You can also look up the terms in the Animated Maths Dictionary for a specific definition.

ITEMS NEEDED
✓ Interactive whiteboard
✓ Mathletics teacher login
✓ Computers/tablets
✓ Spinners
✓ Dice
✓ Chart paper
✓ Markers
✓ Coins

ASSESSMENTS
✓ Observations
✓ Participation
✓ Probability Questions (index cards)
✓ Math journals
✓ Collect eBook handouts for assessment

ACCOMMODATIONS/MODIFICATIONS
✓ Ability groups
✓ Encourage students to use manipulatives for probability
✓ Limit/modify the number of questions required
✓ Have a teacher-led centre.
✓ Scaffold student learning.
✓ Allow students to work in a grade level above or below in Rainforest Maths.

EXTENSION OF LEARNING
✓ Curriculum activities
✓ During Science, have students determine the outcomes of an experiment.
✓ Have students create tree diagrams during language arts.
The Lesson

Problem Solving

• To begin having students think about possible outcomes, start with a combinations Problem Solving game. Go to Demonstrations > Problem Solving > Combinations > I-scream Lady game.

• Students should take turns coming up the interactive whiteboard and determining a possible combination. At the end, ask students: How many different combinations are there? If all the ice cream cones were in a freezer and I pulled one out, what would be my chances of having one with chocolate? Mango? How would we represent this in a fraction? How else could we organize this data? Is it more likely to get an ice cream with chocolate or strawberry?

• You can also try the Monkey Matters game under Data in Problem Solving. This will introduce students to a tree diagram and how to record possible outcomes using this method.

Probability Games (Centres)

o Centre 1—Spinners: Have students complete page 6 of the Grade 6 eBook, “Chance and Probability.” Give students spinners, or have them create their own. Students should use these manipulatives to help answer the questions. Have students glue these sheets into their math notebooks. What are you most likely to land on? What are you less likely to land on? What outcomes are possible?

o Centre 2—The Mathletics Cup: Have students complete page 9 of the Grade 5 eBook, “Chance and Probability.” Students should work in partners to create their own games. Once they have tested their games, students should play with another pair. Is your game fair? How could you improve your game?

o Centre 3—“Rainforest Maths”: Display on the interactive whiteboard Rainforest Maths. Log in to the Teacher Console > Demonstrations > Rainforest Maths > Grade 5 > Space > Probability. Have students work together at this centre to complete the interactive problems. Students will have a chance to explore dice probability, spinners, and using tree diagrams. After centres are completed, have one student from each group teach the other students what their group did and the strategies they used to determine the possible outcomes.

After the lesson

• What are the Chances?

Have students complete on an index card their own probability question. With an elbow partner, give students the sentence starter, “What are the chances...” Students should think about when they would see/use probability in real life. Partners should determine a question to ask another group. Collect questions to solve in next class. (Ex., What are the chances of running into a girl in our classroom?) Students could then determine the odds of running into a girl out of the whole school or class.
LESSON PLANS: SASKATCHEWAN
Grade 5: Space and Shape
Measuring Length

ITEMS NEEDED
- Interactive whiteboard
- Mathletics teacher login
- Computers/tablets
- Measurement tools

OUTCOME: SS5.2
- Demonstrate understanding of measuring length (mm) by:
  - selecting and justifying referents for the unit mm
  - modelling and describing the relationship between mm, cm, and m units.

ASSESSMENTS
- Observations
- Participation
- Curriculum activity marks (found in Results)
- Have students initial their sticky notes for assessment.

ACCOMMODATIONS/ MODIFICATIONS
- Ability groups
- Encourage students to use the “Something Easier” and “Something Harder” sections of curriculum activities.
- Allow students to work in a grade level above or below in Rainforest Maths.

EXTENSION OF LEARNING
- Problem Solving “Making Tracks” game
- Use scales for measurement in science.
- Design a recipe with students. Use different types of measurement within the recipe. Ask students to convert measurements where necessary.
- eBook: Grade 5, Length, Perimeter and Area: Units of length.

Introduction to Lesson

TEACHER BACKGROUND:
Log in to your Teacher Console > Demonstrations > Concept Search.

Type length into the Search bar. Review with students perimeter and area. Search different units of measurement in Concept Search and Animated Maths Dictionary.

Ask students when it is appropriate to use specific types of measurements:
- When would we use centimetres as our unit of measurement?
- When would it be appropriate to use metres?
- Have students estimate different lengths in the classroom.

Ask students:
- How did you know what unit of measurement to use?
- Was your estimation close to the actual length/height? Why or why not?
- Record information on a KWL chart.

NOTE: Teachers should show students a variety of manipulatives for students to use during the measurement unit. Scales, rules, meter sticks, links, tape measures, measuring cups, pedometers, etc.). Have students brainstorm real-life examples of when you would use these measurement tools.
Research/Curriculum Activities/Rainforest Maths

- Have students log in to their Student Console of Mathletics. Give students time to explore different types of measurement in the Concept Search and Animated Maths Dictionary on their own.
- Have students start to complete curriculum activities in the Grade 5 course. Suggested activities: Measuring Length, Converting cm and mm, Converting Units of length. They can then explore in Rainforest Maths: Measurement. Explain to students how measurements can convert. Begin discussing which units of measurement are larger or smaller.

Cross-Curriculum Activity: Students can measure themselves and body parts during Phys.Ed time. They can measure different objects and physical activities (i.e., distance jumped, length of the gymnasium, length of strides when walking, etc.).

eBook: Unit Bingo

- As a class, play a game of Unit Bingo. Players should fill out their individual bingo cards. Unit bingo is found on page 2 of the eBook > Grade 6 > Length, Perimeter and Area, Units of length section.
- Once students have completed their cards, the teacher can call out units of measurement. If there is an item written on their card that could be measured using that unit of measurement, they can cross it off. First player to get a bingo wins!
- Discuss with students what the most common unit of measurement is. Why do they think this is the case?

After the lesson

- On the KWL chart, have students fill out a sticky note with one thing they learned about choosing the correct unit of measurement, a real life example of something we measure, or one thing they learned about measurement they did not know before today’s class. Students can stick these onto the "L" spot.
- Have students periodically complete these, and at the end of the Measurement unit you will be able to see all of the things students have learned each day.
Outcome: N6.1
- Demonstrate understanding of place value including:
  - greater than one million
  - less than one thousandth.

**ITEMS NEEDED**
- Interactive whiteboard
- Mathletics teacher login
- Student handouts from eBooks
- Computers/tablets
- Base ten blocks
- Place value charts
- Chart paper
- Markers
- Abacus (if used in the classroom)

**ASSESSMENTS**
- Observations
- Collaborative/group work
- Oral presentation
- Collect and assess place value charts

**ACCOMMODATIONS/MODIFICATIONS**
- Allow students to use their own place value chart and base ten blocks to help read and represent whole numbers.
- Pair students in ability or leveled groups.

**EXTENSION OF LEARNING**
- Curriculum activities
- Grade 6 eBook: “Reading and Understanding Whole Numbers”, various sections.
- Rainforest Maths, Grade 6, Numbers section.
- Live Math Level 6
- Have students look up abacus in the Concept Search section of their Student Console; interact with this concept.
The Lesson

Teacher Background:
Students should have created their own place value charts prior to this lesson, or be given a handout of a place value sheet.

eBooks—Read and Understand Numbers (Ordering)
• For this math game, students will each need a printed handout from the eBook > Grade 6 > Reading and Understanding Whole Numbers, Read and understand numbers section, page 4, question 3. A copy should be made for every student. Students should be placed in or choose a group of four for this activity.
• Every student will need a set of the digit cards. Students can practice making the largest numbers they can. As an extension to this activity, have students place their numbered cards in their place value chart. Students should say the word aloud to obtain the points.

Open-Ended Problem Solving—Some Really Big Numbers
• Option 1—Display the Problem Solving questions, one at a time, on the interactive whiteboard. Log in to your Teacher Console > eBooks > Problem Solving > Problem Solving Level 3 > Open-ended Problem Solving > Some really big numbers activity.
• Have students work collaboratively to determine a solution to the problems. Students should write the number in their place value charts. Students should write the whole number in words. Students can then test the real-life problem and begin determining strategies to find a solution.
• Option 2—Using the same activity as above, print out the handout from the Problem Solving eBook and distribute to partners. Students should work on one of the three open-ended Problem Solving questions. In partners, students should show their work for each problem, writing the whole number in both words and digits. Have students write their responses on chart paper and share with the class.

After the lesson

• 3, 2, 1
How It Works: 3 things you have learned, 2 things you have questions about, 1 thing you want the teacher to know. Students can share their 3, 2, 1 response orally, through discussion, or you can provide exit slips (sticky notes) and have students post these before the class ends.
LESSON PLANS: SASKATCHEWAN
Grade 6: Pattern and Relations
Growing and Shrinking Patterns

**Outcome:** P6.1
- Extend understanding of patterns and relationships in tables of values and graphs.

**Introduction to Lesson**

**Teacher Background:**
Play the Marian Small video "Pyramid Prediction." Log in to your Teacher Console > eBooks > Grade 6 > Marian Small’s Pyramid Prediction > Videos.

This video has two parts. Play Part 1 of this video, stopping at each section for questioning. Play Part 2 of the video and pause for students to investigate and calculate possible answers for the patterns.

**Prompting Questions:**
- What is happening in this row/section of the pyramid?
- How do you know the pattern rule?
- Can you determine what the top number would be without filling in the other rows?

**ITEMS NEEDED**
- Interactive whiteboard
- Mathletics teacher login
- Computers/tablets
- Marian Small’s Pyramid Prediction handout
- Math journals/blank paper

**ASSESSMENTS**
- Observations
- Discussion during guided math group time
- Collect and assess journal responses

**ACCOMMODATIONS/MODIFICATIONS**
- Leveled or ability groups for guided math time.
- Scaffold during guided math

**EXTENSION OF LEARNING**
- Curriculum activities
- Grade 6 eBook: Patterns and Algebra
- Rainforest Maths, Grade 6, Patterns
- Have students find real-life examples of when they would need to use a number pattern or have seen/used a growing/shrinking pattern in their lives.
- Write a journal response on where you have used a table of values before. When can it be used? What professions would use this type of table?
- Create your own math game/math brain twister using a table of values or pyramid.
The Lesson

Shared Math Activity
Pyramid Prediction Interactive
• Open Marian Small’s Pyramid Prediction Interactive found in eBook > Grade 6 > Marian Small’s Pyramid Prediction. Display this problem on your interactive whiteboard. Have students choose the numbers to put in the bottom row. Click on the connector boxes. Ask students: What has happened to the numbers? What rule/pattern can you come up with? Can we predict what the next row of numbers will be? Can we predict the number at the top of the pyramid? How do you know this?

Guided Math Group
Teacher-Led Pyramid Handout Activity
• In leveled/ability groups, teachers should designate a table or spot in the classroom to call over groups to work with them on the Pyramid Prediction handout sheet found in Marian Small’s Pyramid Prediction. Work with groups to scaffold student learning and determine how your students are grasping this concept. Have students complete three different pyramids (worksheet found with Teacher Notes) and explain to you their steps in completing the question. Stop students during their work and ask them to predict what the top number would be. Guide student learning using the questions found in the Teacher Notes section of this Marian Small eBook.

Independent Math Activity
Concept Search/Journal
• Have students log in to their Student Console > Concept Search. Type Table of Values into the Search bar. Students should investigate this concept and how it is similar to and different from the pyramid patterns. Prompting questions to post: How are the pyramid and table of values similar? Can you determine a pattern using a table of values? Can you determine a pattern using a pyramid? Which method do you find easier? Students should journal their response and show an example of both ways to describe and represent growing and shrinking patterns. If your students do not have math journals, they can use a math response sheet/loose-leaf paper to express their ideas.

After the lesson

Live Math
• Give students time at the end of class to play Live Math against other students in their class. Each round is 60 seconds; you can allot 5–10 minutes for this activity. Add "Top Live Mathlete of the Day" to your board for the person who received the greatest number of points.
Outcome: SS6.1
- Demonstrate understanding of angles including:
  - identifying examples classifying angles
  - estimating the measure
  - determining angle measures in degrees
  - drawing angles
  - applying angle relationships in triangles and quadrilaterals

Introduction to Lesson

Teacher Background:
Log in to Mathletics using your teacher login. Go to Teacher Console > Demonstrations > Concept Search.

Search protractor in the Search bar. Have students interact with the protractor to measure angles. Ask students to draw a shape that includes this type of angle.

Have students use their arms for the sides of the angle.

Ask students,
- Can you make a 90° angle with your arms?
- Can you construct an angle greater than 90°?
- What happened to your arms?
- What do we call and angle that is larger than 90°?
- What about when it is less?
- How do we properly measure an angle?

ITEMS NEEDED
- Interactive whiteboard
- Mathletics teacher login
- Mathletics Grade 6 eBook, Geometry (Lines and Angles section) printed for each student
- Markers
- Protractor

ASSESSMENTS
- Have students use self and peer assessment for the Hand it over activity.

ACCOMMODATIONS/MODIFICATIONS
- Have students work with leveled groups or partners.
- Use this activity as a rotation.
  1st station: Measuring angles on the interactive whiteboard.
  2nd Station: Hand it over activity in eBooks
  3rd Station: Constructing Polygons

EXTENSION OF LEARNING
- Have students complete the paper-folding activity in the Grade 6 eBook > Geometry > Lines and angles > question 1
The Lesson

"Hand it Over" Activity

- Display "Hand it over" activity on interactive whiteboard.
- Sign in to Mathletics Teacher Console > eBooks > Grade 6 > Geometry. Click on "Lines and Angles". Scroll to "Hand it over" activity on the last page.
- Have students work in partners or groups to trace their hands in different positions. Then have students estimate the size of the angles in between their fingers. Have partners/groups exchange their hands with another group and measure the angles between the fingers. Label the fingers with the type of angle. (Ex., acute, right, straight, obtuse.).
- **Discussion Questions**: How did your hand/finger angles differ from another group’s? Did you have more acute, obtuse, or right angles? How would the position of your fingers affect the angles?
- In the designated box on the interactive whiteboard, generate a hand with the class that has one right angle and one obtuse angle. How would this hand have to look? What other types of angles are in your hand? How do you know?

Constructing Polygons

- Search polygons in Concept Search. Sign in to Mathletics Teacher Console > Demonstrations > Concept Search click Concept Search again. Type "polygon" into Search bar.
- Review what makes a shape a polygon. Discuss what types of angles are present in different polygons. Review acute, obtuse, straight, and right angles again.
- **Ask students:**
  - What polygon could you draw with one 90° angle?
  - What polygon could you draw with one acute angle?
  - What polygon could you draw with two different types of angles?

Students can draw these independently, in small groups, or collaboratively on the interactive whiteboard.

After the lesson

- Discuss with students real-life examples of where we find angles.
- **Ask students**: What jobs/sports would require you to know how to measure an angle? (soccer, architect, designer, construction worker, fitness instructor, etc.) Where do we see angles in the classroom? at home? (Ex., clocks, desks, walls, rugs, rooms, etc.)
LESSON PLANS: SASKATCHEWAN
Grade 6: Space and Shape
Triangles

**Outcome: SS6.3**
- Demonstrate understanding of regular and irregular polygons including:
  - classifying types of triangles
  - comparing side lengths
  - comparing angle measures.

**Introduction to Lesson**

**10 MINS**

**Teacher Background:**
Play Dr. Marian Small’s "What Triangle Is That?” video to introduce triangles. Log in to

Teacher Console > eBooks > Grade 5 > Marian Small’s What Triangle? video.

Pause after the questions in the videos.

Ask students,
- What types of triangles are there?
- Is it possible to have a scalene triangle?
- What does that tell you about the angles?
- How do we know a triangle is isosceles? obtuse? scalene? etc.

Brainstorm everything you know about triangles and angles in a KWL chart.

**NOTE:** You can show additional videos related triangles in the Teacher Console by clicking on Teacher Toolkit. Enter triangles in Search bar. Click Presentations tab. Select any video for added visual for students.

**ITEMS NEEDED**
- Interactive whiteboard
- Mathletics teacher login
- Marian Small’s printed student problem
- Laptops
- Geoboards
- Elastics
- Dot paper

**ASSESSMENTS**
- Observation
- Group work checklist
- Journal entries
- Comment section of interactive word problem

**ACCOMMODATIONS/ MODIFICATIONS**
- Modify lesson using flipped classroom approach. Students look up concepts in Mathletics Concept Search at home prior to lesson.

**EXTENSION OF LEARNING**
- Students present a type of triangle to the class, using information found in Concept Search within Mathletics.
- Ask students to create different polygons with various types of angles using dot paper or geoboards.
- Complete pages 11 and 12 in Year 5 Geometry eBook: 2D Shapes section in Mathletics.
The Lesson

Centres

Teacher Background: Place students in ability groups. Have students choose their starting centre, or place students in a selected rotation. Teacher will need to set up centres prior to lesson and print “What triangle is that?” word problem for students. Have students record their learning in a math journal at each centre (if math journals are implemented in your classroom).

- Centre 1: Laptops/Computers
  Students can sign in to their Student Console. At this centre, have students explore Concept Search. Students can search for concepts related to classifying triangles. Suggested terms could be: isosceles, triangles, equilateral, scalene. Students can click on the square and arrow icon located in the bottom right hand corner to maximize view and interact with the concept. Have students record what types of angles help to classify different triangles.

- Centre 2: Problem Solving
  Students can work on the printed Marian Small word problem What Triangle Is That? To accommodate for various learning styles, set up geoboards so students can practice making the triangles with elastics. Dot paper can also be used. Students can then answer the problem on their word problem sheet, recording as many different triangles as they can that would work for the suggested problem.

- Centre 3: Interactive Whiteboard
  Use this centre as a reinforcement activity; display the Marian Small interactive problem on the interactive whiteboard. Log in to your Teacher Console > eBooks > Grade 5 > What Triangle? > What Triangle is that? Interactive Problem. Have students work through the problem in their groups using the interactive protractor. Students should include a comment once they have reached a possible solution to the problem.

Extra-time/cross-curriculum activity: Have students create an art project using only triangles. Students need to make a repeating design using only one type of triangle. They should use a protractor to create one type of triangle and then cut the 2d shape out. Use this triangle as a template to flip, slide, and turn to create a design or pattern. Have students colour in the geometric pattern in Art.

After the lesson

Think, Pair, Share

Give students 2 minutes to think about something they have learned during this lesson. Have students turn to their elbow partner and share their learning. Prompt with questions like: What properties are specific to isosceles triangles? What did you find easy/difficult about constructing triangles?
LESSON PLANS: SASKATCHEWAN

Grade 6: Statistics and Probability
Creating, Reading, and Interpreting Line Graphs

50 MINS

Outcome: SP6.1
- Extend understanding of data analysis to include:
  - line graphs
  - graphs of discrete data
  - data collection through questionnaires, experiments, databases, and electronic media
  - interpolation and extrapolation.

ITEMS NEEDED
- Interactive whiteboard
- Mathletics teacher login
- Laptops
- Printed eBook worksheet
- Graph paper for practice

ASSESSMENTS
- Group work
- Oral presentation
- Review graphs

ACCOMMODATIONS/MODIFICATIONS
- Create ability or leveled groups.
- Data disaster problem could be done individually and assessed.
- Give students the option to submit their work or do an oral presentation.
- Have students watch the video at the beginning of class together. Allow students to formulate questions. Lead your lesson by following their inquiries.

EXTENSION OF LEARNING
- Mathletics Year 5 Ebook: Data Representation, Types of Graphs 3 activity. This includes line graphs and broken-line graph practice.
- Assign curriculum activities
- Rainforest Maths: Grade 6, Data Management

Introduction to Lesson

10 MINS

Teacher Background:
Students should have prior knowledge of line graphs and broken-line graphs from Grade 4. Conducting surveys and recording data in line graphs should have been taught prior to this lesson. This lesson’s main focus is reading, interpreting data, and drawing conclusions from graphs, as well as correct labeling, proper scales, and titles for specific types of graphs.

To introduce how to properly read and interpret data from a line graph, show students the video “Introducing Distant Time Graphs.”

Log in to your Teacher Console > Toolkit.

Type line graphs into your Search bar. Click Presentations tab on the left-hand side. Choose “Introducing Distant Time Graphs.” This video will introduce students to a line graph and how to set up a vertical and horizontal axis with a proper scale. Pause during the video to discuss what is being shown on the line graph.

Ask students: Why do we use this scale for time? Is there another range we could use? Where is the highest point on the graph? Why do you think they chose this measurement? Tell a story about how this data could have been collected.

NOTE: There are a variety of other videos related to interpreting graphs, scatter plots, and other areas of data management you can explore with your students.
LESSEN PLaNS: SASKATCHEWAN
Grade 6: Statistics and Probability
Creating, Reading, and Interpreting Line Graphs

The Lesson

Open-Ended Problem Solving—The Story of a Graph
• Display the open-ended problem on interactive whiteboard.
• Log in to your Teacher Console > eBooks > Problem Solving > Problem Solving Level 3 Book > Open Ended Problems > Worksheet 5.
• Review the line graph with students, asking prompting questions like: Why is this an appropriate scale to measure water on? What information can you tell from this graph? Why was a line graph chosen to organize the data? How could we graph all months of the year? What would be different about that graph?
• Have students work in their table groups or partners to brainstorm and explore various ideas for the line graph and pie graph. Ask students prompting questions like, what would be an appropriate title? How could this data have been collected? What data would not work on these graphs? Discuss various responses from different groups.

eBook—Data Disaster
• Divide your students into leveled groups. Using the same eBook as above, print the Data Disaster eBook problem sheet for each group to work collaboratively on this section of the eBook. Teacher can read aloud the Getting Ready section of the worksheet.
• Students should then begin giving their graphs data, labels, and titles and working collaboratively to determine possible solutions for the graphs.

Extra-time/cross-curriculum activity:
• Have students collect data prior to this lesson about an experiment, an issue in the school or community, or from another subject. Have students record their observations or measurements over time.
• Students can then use a line graph to represent the data and show a trend over time. Science experiments/growth plans would work best for this activity.

After the lesson

Oral Presentation
• Give students time at the end of the lesson to prepare a one-minute share aloud.
• Have students present their stories related to the graphs. Formulate class-discussion based on student responses.

For more information contact our friendly team...
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For more information about these lesson plans, or any aspect of Mathletics, contact our friendly team.