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Scratch 2050 Lesson Plans

Table of contents

Lesson plan biology senior 3

Lesson plan biology senior 4

Lesson plan chemistry senior 1

Lesson plan chemistry senior 4

Lesson plan ICT senior 3

Lesson plan ICT senior 4

Lesson plan math senior 3

Lesson plan math senior 4

Lesson plan physics senior 2

Lesson plan physics senior 4



LESSON PLAN Biology Senior 3

Term	Date	Subject	Class	Unit	Lesson	Duration	Class Size
I	21/102020	Biology	S3	Interdependence among organisms in an ecosystem.	Predation	40minuts	15
Type of special Educational Needs to be catered for in this lesson and number of learners in each category				No special education need			
Unit title	Interdependence among organisms in an ecosystem.						
Key Unit competence	To be able to classify examples of species interactions.						
Title of the lesson	Predation (hunting animal (prey), animal (predator)).						
Instructional objective	Identify features that allow a predator to kill and feed on its prey						
Plan for this Class (location: in/outside)	Inside class room						
Learning Materials (For all learners)	Computer, flip charts, chalk board and internet						
References	e-source, biology for s3 students book.						

Timing for each step	Description of teaching and learning activities: Having the different examples of common prays and predators both domestic and wild, aquatic and terrestrial, learners by themselves classify them into groups and appreciate their existence on the earth and their importance to human life.		Generic competences and Cross cutting issues to be addressed + a short explanation
	Teacher activities	Learner activities	

<p>Introduction (5minuts)</p>	<p>Engage phase With the chats of different organisms Ask the learners to give examples organisms from the flip chart.</p>	<p>-The learners will observe and they will answer questions from teacher by stating organisms seen from the flip chart.</p>	<p>Critical thinking, brainstorming, cooperation, communication skills, problem solving Learner centered learning utilizing ICT with 4E (Exposure, Enjoy, Engage, Evaluate) (a)Gender education: During forming the groups, we based on the number of boys and girls in the class</p>				
<p>Development of the lesson (30 minutes)</p>	<p>(b)Explore phases - Students are organized into five group and they are observing in front of them the flip chart -learners are given chance to state and define the major terms - Teacher will develop scratch animation to facilitate learners to explore the content -The learners are given the piece of paper where it is drawn a table to use for grouping</p> <table border="1" data-bbox="510 1299 1016 1366"> <tr> <td>Prey</td> <td>Predator</td> </tr> <tr> <td></td> <td></td> </tr> </table>	Prey	Predator			<p>-The learners go to their groups and choose the secretaries and time keepers of the group - they understand carefully instructions from teacher and work together in order to achieve to good results. Major terms: Predator: is an animal that lives by killing and eating other animals : -The learners, guided by teacher are going to work out the activity given by the teacher</p>	<p>(b) Peace education: acknowledging our differences and be the importance of living together (c) Inclusive education: to pay attention to all learners in the class, based on their ability of learning (d) Environmental education different organism are important in ecosystem to environment</p>
Prey	Predator						

	<p>(d) Elaborate phase I ask the learners to observe the animation from scratch. -support the groups and help them where possible -Ask learners to note what they have observed -Using the blackboard, ask the learners to present their findings</p> <p>(c) Explain phase -In their groups, learners, referring to the above activity, are going to give adaptation of each group in common - I ask them to present their findings and are noted on the blackboard.</p>	<table border="1"> <tr> <td data-bbox="1041 199 1254 231">PREYS</td> <td data-bbox="1263 199 1480 231">Predators</td> </tr> <tr> <td data-bbox="1041 231 1254 335">Cow, goat, pig, hen , buffalo, zebra.</td> <td data-bbox="1263 231 1480 335">Dog, cat, lion, leopard</td> </tr> </table>	PREYS	Predators	Cow, goat, pig, hen , buffalo, zebra.	Dog, cat, lion, leopard	
PREYS	Predators						
Cow, goat, pig, hen , buffalo, zebra.	Dog, cat, lion, leopard						
Conclusion (5minuts)	Evaluate phase I ask learners to play the scratch GAME, and ask them to answer individually	The learners with their machines connected to the network ,start a scratch project showing predation process					
Teacher self-evaluation							



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LESSON PLAN Biology Senior 4

Term	Date	Subject	Class	Unit	Lesson	Duration	Class Size
		Biology	S4	14	1/5	40minuts	15
Type of special Educational Needs to be catered for in this lesson and number of learners in each category				No special education need			
Unit title	Support And Locomotion						
Key Unit competence	Explain and demonstrate modes of locomotion in protists, insects, fish, amphibians, birds and mammals						
Title of the lesson	Support and locomotion in terrestrial animals						
Instructional objective	Observe and explain the relationship between muscles, joints and musculoskeletal attachments, amphibians, and mammals.						
Plan for this Class (location: in/outside)	Inside and outside classroom						
Learning Materials	Computer, flip charts, chalk board and internet, and scratch animation on locomotion of common terrestrial animals.						



(For all learners)	
References	e-source, biology for s4 students book.

Timing for each step	Description of teach and learning activity		Generic competences and Cross cutting issues to be addressed + a short explanation
	Teacher activities	Learner activities	
Introduction (5minuts)	<p>Engage phase</p> <p>With the chats of different organisms</p> <p>Ask the learners to give examples organisms from the flip chart.</p>	<p>-The learners will observe, and they will answer questions from the teacher by stating organisms seen from the flip chart. (man, cow, dog snake and earthworm)</p>	<p>Critical thinking, brainstorming, cooperation, communication skills, problem solving Learner centered learning utilizing ICT with 4E (Exposure, Enjoy, Engage, Evaluate) (a)Gender education: During</p>

			<p>forming the groups, we based on</p> <p>the number of boys and girls in</p> <p>the class</p>
<p>Development of the lesson (30 minutes)</p>	<p>(b)Explore phases</p> <ul style="list-style-type: none"> - Students are organized into five groups and they are observing on the flip chart -learners are given chance to state and define the major terms - Teachers demonstrate scratch animation on locomotion of common terrestrial animals to facilitate learners to explore the content. -The learners are given a chance to state different types of locomotion depending on the mammals given on chat. <ul style="list-style-type: none"> a) man b) frog c) dog 	<ul style="list-style-type: none"> -The learners go to their groups and choose the secretaries and time keepers of the group - They understand instructions carefully from the teacher and work together in order to achieve good results. <p>Major terms:</p> <ul style="list-style-type: none"> . locomotion :movement of organisms from one place to another movement: moving part of organism’s body extensor : muscle that increases the angle between member of a limb. 	<p>(b) Peace education: acknowledging our differences and the importance of living together and diversity.</p> <p>(c) Inclusive education: to pay attention to all learners in the class, based on their ability of learning</p> <p>(d) Environmental education different organism are important in ecosystem to environment</p>

	<p>d) earthworms (d) Elaborate phase</p> <p>I ask the learners to observe the video downloaded from youtube that shows locomotion in different terrestrial animals</p> <p>-I ask the learners to note what they have observed</p> <p>-Using the blackboard, ask the learners to present their findings</p> <p>(c) Explain phase</p> <p>-In their groups, learners, referring to the above activity, are going to give adaptation of each group in common</p> <p>- I ask them to present their findings and are noted on the blackboard.</p>	<p>flexor: this is the muscle that flexes a joint.</p> <p>students state the type locomotion in</p> <table border="1" data-bbox="1043 453 1485 715"> <thead> <tr> <th>Animal</th> <th>locomotion</th> </tr> </thead> <tbody> <tr> <td>man</td> <td>walk</td> </tr> <tr> <td>frog</td> <td>jumping</td> </tr> <tr> <td>earthworm</td> <td>crawling</td> </tr> </tbody> </table> <p>-The learners in their group, carry out the simple experiment in their group, And note their observations</p> <p>They present their findings on the black board</p> <p>The learners watch video, provided in scratch animation.</p>	Animal	locomotion	man	walk	frog	jumping	earthworm	crawling	
Animal	locomotion										
man	walk										
frog	jumping										
earthworm	crawling										
Conclusion (5minuts)	<p>Evaluate phase</p> <p>I ask learners to play the scratch GAME, and ask them to answer individually</p>	<p>The learners with their machines connected to the network ,start a scratch project showing locomotion in human</p>									



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Teacher self-evaluation	

Lesson plan chemistry senior 1

School Name:

Teacher's Name:

Term	Date	Subject	Class	Unit No	Lesson No	Duration	Class size
		CHEMISTRY	S1	11	2	40 min	45
Type of Special Education Needs and number of learners:				45 Learners, special attention for learners with low language skills and 4girls with low level of understanding.			
Topic area							
Sub-topic area							
Unit title		Acids, Bases and PH					
Key Unit Competence		By the end of this unit, the learners should be able to extracts indicators from flowers and use them to test observable properties of acids and bases in common domestic substances.					
Title of the lesson		Definition of acids, bases/alkaline and their physical properties.					
Learning Objectives		a) Knowledge and understanding . Define ACIDS and BASES. Outline some common examples of domestic substances that are either acids or bases b) Skills Classify common domestic substances as acids or bases					



	Perform an experiment to extract indicators from flowers Use indicators in identifying and classifying acids and bases c)Attitudes and values Develop a teamwork approach during group activities and experiments Appreciate the importance of the procedures during experiments
Plan for the class(location: in/outside)	Inside and outside
Learning materials	Glass of water, lemon, apple juice and litmus paper
References	Chemistry for Rwandan schools S1 https://www.brightstorm.com

Timing for each step	Description of teaching and learning activities		Core ideas, competences and cross cutting concepts
	Teacher activities	Learner activities	
Introduction 5 min	Engage phase Showing them lemon, litmus paper, glass of water and apple and ask them to differentiate those materials.	Learners answer questions from teacher Distinguish lemon and apple	Critical thinking Gender education To see something brainstorming

Development of the lesson 15 min	<p>Explore phase Set the student into groups Facilitate them to use lemon, glass of water, apple 'litmus paper from sprites and sensing their materials to change the colour, Facilitate them to use motion and control blocks (if condition)</p>	<p>In their groups learners will use sprites to find materials to be used like lemon, apple, glass of water, litmus paper Using sensing to change the colour litmus paper due to acids from lemon</p>	<p>Creativity and innovation Communication skills Cooperation Gender Education Critical thinking Long life learning.</p>									
10 min	<p>Explain phase Guide learners to explain their findings in front of others. Show them materials which contain acids, basis and neutral</p> <table border="1" data-bbox="416 727 1111 850"> <tr> <td>acids</td> <td>bases</td> <td>Neutral</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	acids	bases	Neutral							<p>Explain their findings Asking questions and give answers The learners in their group, carry out the simple experiment in their group and note their observations.</p>	<p>Listening skills Critical thinking Gender education Long life learning Communication skills.</p>
acids	bases	Neutral										
5 min	<p>Elaborate phase: Ask learners to use scratch to see how the colour can be changed due to acids effects Ask learners to note what they have observed Using computers, ask learners to present their findings</p>	<p>The learners with their machines connected to the network, start playing their findings by using scratch blocks and sprites</p>	<p>Long life learning Gender education Critical thinking Creativity and innovation</p>									

<p>Conclusion 5 min</p>	<p>Evaluate phase In their groups ask learners to perform the activity Show how the colour can be changed through the acids and bases in reality.</p> <p>Playing the activity by using the scratch blocks and sprites.</p>	<p>The learners participate actively in the given activities.</p>	<p>Long life learning Gender education Critical thinking Long life learning Problem solving skills.</p>
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LESSON PLAN Chemistry senior 4

Term	Date	Subject	Class	Unit	Lesson	Duration	Class Size
I	21/10/2020	Chemistry	S4	4	1out of 4	40minuts	15
Type of special Educational Needs to be catered for in this lesson and number of learners in each category				No special education need			
Unit title	Covalent bond and molecular structure						
Key Unit competence	Demonstrate how the nature of the bonding is related to the properties of covalent compounds and molecular structures.						
Title of the lesson	Overlap of atomic orbitals to form covalent bonds						
Instructional objective	Using dot and cross diagrams to show how a covalent bond is formed in:						
Plan for this Class (location: in/outside)	Inside class room						
Learning Materials (For all learners)	Computer, flip charts, chalk board and internet						
References	E-source, chemistry student and teachers book for S4.						

Timing for each step	Description of teach and learning activity	Generic competences and Cross cutting issues to be addressed + a short explanation

	Having the different examples Water formation student will be guided how Water molecule is formed by two atoms of hydrogen and one atom of oxygen, its formula is H ₂ O.		
	Teacher activities	Learner activities	
Introduction (5minuts)	Engage phase With the chats of different molecules Ask the learners to give examples molecules from the flip chart.	-The learners will observe and they will answer questions from teacher by stating organisms seen from the flip chart.	Critical thinking, brainstorming, cooperation, communication skills, problem solving Learner centered learning utilizing ICT with 4E (Exposure, Enjoy, Engage, Evaluate) (a)Gender education: During forming the groups, we based on the number of boys and girls in the class
Development of the lesson (30 minutes)	A) Explore phases Students are organized into five group and they are observing in front of them the flip chart. Teacher will develop scratch animation showing how molecules of hydrogen and oxygen combine together to form water to facilitate learners to explore the content B) Elaborate phase	-The learners go to their groups and choose the secretaries and time keepers of the group - They understand carefully instructions from teacher and work together in order to achieve to good results. -The learners in their group, carry out the simple experiment in their group joining different	(b) Peace education: acknowledging our differences and be the importance of living together (c) Inclusive education: to pay attention to all learners in the class, based on their ability of learning (d) Environmental education different organism are important in ecosystem to environment

	<p>I ask the learners to observe the video</p> <p>Downloaded from you tube that shows how different molecules are formed like Hydrogen molecule (H₂) (b) Hydrogenchloride molecule (HCl) (c) Chlorine molecule (Cl₂).</p> <p>supporting the groups and help them where possible</p> <p>Ask the learners to note what they have observed</p> <p>Using the blackboard, ask the learners to present their findings</p> <p>(c) Explain phase -In their groups, learners, referring to the above activity, are going to give type of bonding that exist in the formation of above molecules - I ask them to present their findings and are noted on the blackboard.</p>	<p>substances using chewing gums and note their observations They present their findings on the black board</p> <p>The learners watch video, provided in scratch games</p>	
<p>Conclusion (5minuts)</p>	<p>Evaluate phase I ask learners to play the scratch GAME, and ask them to answer individually</p>	<p>The learners with their machines connected to</p>	

		the network ,start a scratch project showing bonding of mention molecules	
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LESSON PLAN ICT Senior 3

Term	Date	Subject	Class	Unit	Lesson	Duration	Class Size
		ICT	3	10	5	40 minutes	40
Type of special Educational Needs to be catered for in this lesson and number of learners in each category				Unknown			
Unit title	Platform Game Programming						
Key Unit competence	To be able to use complex expressions, operators and controls to design platforms.						
Title of the lesson	SAMPLE COMMANDS AND CONTROLS FOR SPRITE MANIPULATIONS						
Instructional objective	Learners will be able to: <ul style="list-style-type: none"> • Produce more platforms using scratch facilities and different commands and controls. • Appreciate the platforms produced. 						
Plan for this Class (location: in/outside)	Inside						
Learning Materials (For all learners)	Computers, projector, scratch editor and digital material.						
References	Information and Communication Technology (ICT) for Rwanda Schools Learner's Book Senior Three						



Timing for each step	Description of teaching and learning activity Given the activities, the learner should be able to answer the questions asked.		Generic competences and Cross cutting issues to be addressed + a short explanation
	Teacher activities	Learner activities	
Introduction 10 minutes	<ul style="list-style-type: none"> • learners to add a level of a game • Learners to practice “sample commands and controls for sprite manipulations”. 	<ul style="list-style-type: none"> • Individual work on producing platforms, combo blocks, etc. • Practice on using commands to add a level of a game, controls and commands. 	<ul style="list-style-type: none"> • Critical thinking • Creativity and innovation • Research and problem solving
Development of the lesson STEP 1: 10 minutes STEP 2: 15 minutes	<ul style="list-style-type: none"> • Review of the previous lesson with short exercise. • Introduce the lesson with the lesson title “ Sample commands and controls for sprite manipulations. • Discuss with learners and also demonstrate how to use sample commands for sprite manipulations and sample controls. Most of those commands and 	<p>. Tell students to practice what is in (Learner’s Book pages 348–349)</p> <p>. Let learners do Activity 10.5 on Learner’s Book page 345.</p> <p>1. Using the Hard Journey game in the previous activity, design two more challenging backdrops (add 2 levels) to work for level 4 and level 5 of the game. Let the backdrops be placed in between backdrop 2 and 3.</p>	<ul style="list-style-type: none"> • Communication • Cooperation, interpersonal relations, and life skills • Communication • Cooperation, interpersonal relations, and life skills • Communication

	<p>controls have been used in our game.</p> <ul style="list-style-type: none"> • Guide learners to use some control commands for sprite manipulations such as: If, forever, repeat until, point in direction, move steps, touching, show/hide, if else, switch to costume, set to, etc. in a game. 	<p>2. Make a variable called Jump and use it to test how John-sprite works with gravity while jumping.</p>	<ul style="list-style-type: none"> • Cooperation, interpersonal relations, and life skills
<p>Conclusion 5 minutes</p>	<ul style="list-style-type: none"> • Instruct learners to save their work safely. Make a summary of the lesson and unit by putting emphasis on learners practicing the sample commands for sprite manipulations and all sample controls. 	<ul style="list-style-type: none"> • Using the designed backdrops (platform) in Activity 10.3, add levels of the game enabling a player to move from one level to another. Create a winning costume that will produce a sound and a winning message at level 3. 	<ul style="list-style-type: none"> • Communication • Cooperation, interpersonal relations, and life skills

Teacher self-evaluation	If anticipated conditions are met then students will master the content at a percentage equal to 100%.
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LESSON PLAN ICT senior 4

Term	Date	Subject	Class	Unit	Lesson	Duration	Class Size
1	15/11/2020	ICT	4	12	2	40 minutes	40
Type of special Educational Needs to be catered for in this lesson and number of learners in each category				Unknown			
Unit title	Control Statements in C++						
Key Unit competence	To be able to use control statements in C++ program to implement branching and iterations						
Title of the lesson	Looping						
Instructional objective	Learners will be able to: Demonstrate how looping works in C++ using Scratch blocks						
Plan for this Class (location: in/outside)	Inside						
Learning Materials (For all learners)	Computers, projector, scratch editor and digital material.						
References	Computer Science Competence Based Syllabus for Rwanda Education System Learner's Book Senior Four Teacher's Guide Senior Four						

Timing for each step	Description of teaching and learning activity	Generic competences and Cross cutting issues to be addressed + a short explanation



	Given the activities, the learner should be able to answer the questions asked.		
	Teacher activities	Learner activities	
Introduction 5 minutes	Teacher will ask students to write a flowchart of a program that has recurring actions	Referring to Unit-7: where they studied introduction to Computer Algorithm, out of their creativity, learners will write a flowchart of a program with recurring actions	<ul style="list-style-type: none"> • Critical thinking • Creativity and innovation • Research and problem solving
Development of the lesson STEP 1: 10 minutes STEP 2: 15 minutes	Teacher will pick up two flowcharts, one provided by a boy and another provided by a girl, and use them demonstrate to turn a flowchart into a sequential Scratch program. Teacher will then tell learners to work in groups and turn remaining flowchart into Scratch programs The teacher will take a sequential Scratch program written in Step 1 and shorten it using loop blocks.	Learners will follow the teacher as s/he demonstrates how a flowchart is turned into a sequential Scratch program. Learners will work in groups to turn their flowcharts into sequential Scratch Programs Learners will follow the example of the teacher and then, still in their respective groups, shorten the Scratch programs written in Step 1	<ul style="list-style-type: none"> • Communication • Cooperation, interpersonal relations and life skills • Communication • Cooperation, interpersonal relations and life skills

<p>Conclusion</p> <p>10 minutes</p>	<p>Teacher will relate the program written using Scratch to a program written in C++. The teacher will write a sequential program in C++ and then shorten it using loop controls.</p> <p>See appendices: A & B</p>	<p>Learners will, still in their respective group write sequential C++ programs and then shorten them using loop controls</p>	<ul style="list-style-type: none"> • Communication • Cooperation, interpersonal relations and life skills
<p>Teacher self-evaluation</p>	<p>If anticipated conditions are met then students will master the content at a percentage equal to 100%.</p>		

Appendices

Appendix A: C++ program that prints out a pyramid

```
//C++ program to print triangle
```

```
#include<iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int rows, i, j, space;
```

```
cout << "Enter number of rows: ";
cin >> rows;

for(i = 1; i <= rows; i++)
{
    //for loop to put space in pyramid
    for (space = i; space < rows; space++)
        cout << " ";

    //for loop to print star
    for(j = 1; j <= (2 * rows - 1); j++)
    {
        if(i == rows || j == 1 || j == 2*i - 1)
            cout << "*";
        else
            cout << " ";
    }
    cout << "\n";
}

return 0;
```

Appendix B: Drawing a triangle in Scratch



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```
when clicked
  erase all
  go to x: 0 y: 0
  point in direction 90
  show
  pen down
  set pen size to 5
  repeat 3
    turn -120 degrees
    move 200 steps
  pen up
  hide
```

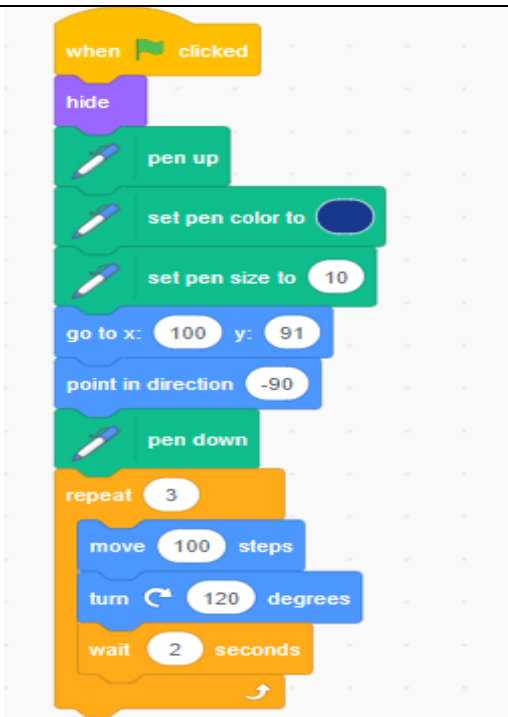


LESSON PLAN Math senior 3

Term	Date	Subject	Class	Unit	Lesson	Duration	Class Size
2	Mathematics	Senior 3	11	2	40 minutes	25
Type of special Educational Needs to be catered for in this lesson and number of learners in each category				2 students with learning difficulties			
Unit title	Enlargement and similarity						
Key Unit competence	By the end of this lesson , the learner should be able to solve problems enlargement and simularity						
Title of the lesson	Similar polygons and similar triangles						
Instructional objective	By the end of this lesson, the learner should be able to use scratch to define enlargement and similarity of polygons and triangles						
Plan for this Class (location: in/outside)	This class will be held indoors						
Learning Materials (For all learners)	Learners should have computers with scratch program.						
References	Rwandan mathematics students book senior 3						

Timing for each step	Description of teach and learning activity		Generic competences and Cross cutting issues to be addressed + a short explanation
	Teacher activities	Learner activities	
40 minutes			

<p>Introduction 10'</p>	<p>Guide learners to draw 2 triangles that have same angles and have different size using scratch</p>	<p>Learners follow instructions provided by the teacher to draw 2 triangles of the same angles and different size</p>	<p>Critical thinking enhanced by coding using scratch, Communication enhanced through group discussion</p>
<p>Development of the lesson 20 minutes</p>	<p>-In group of 3 learners compare 2 triangles and present their findings</p> <p>- Using scratch , guide learners to discover properties similarity of triangles The following are script that are used in this lesson to draw a big size and small size triangle.</p> <ul style="list-style-type: none"> - Use 2 sprites, one for small size, another one for big size <p>Script for drawing small triangle</p>	<p>-Learners join group for discussion and present their findings.</p> <p>-Discuss about properties of similar triangles using scripts of scratch</p> <p>-Learners answer to the question asked by the teacher</p>	<p>Help learners slow learners</p> <p>Critical thinking and cooperation enhanced by coding through scratch and group discussion</p>



```
when clicked
hide
pen up
set pen color to blue
set pen size to 10
go to x: 100 y: 91
point in direction -90
pen down
repeat 3
  move 100 steps
  turn 120 degrees
  wait 2 seconds
```

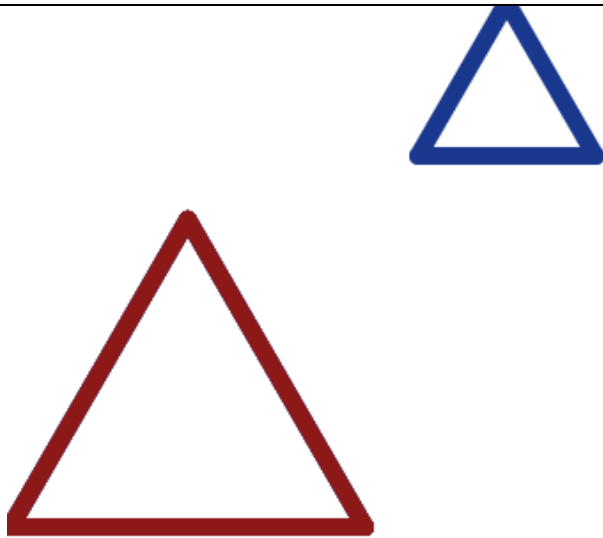
The image shows a Scratch script on a grid background. The script starts with a yellow 'when clicked' block. This is followed by a purple 'hide' block, a green 'pen up' block, a green 'set pen color to' block with a blue circle, and a green 'set pen size to' block with the number '10'. Next is a blue 'go to x: 100 y: 91' block, a blue 'point in direction -90' block, and a green 'pen down' block. The script then enters a loop: an orange 'repeat' block with the number '3' contains three blocks: a blue 'move 100 steps' block, a blue 'turn 120 degrees' block, and an orange 'wait 2 seconds' block. The loop ends with a small arrow icon.

Script for drawing big triangle



```
when clicked
hide
pen up
set pen color to red
set pen size to 10
go to x: -30 y: -118
point in direction -90
pen down
repeat 3
  move 200 steps
  turn 120 degrees
  wait 2 seconds
```

The result will be like:



Exercise

Ask learners to draw two regular pentagon of different size

Conclusion
(10')

Guide learners to draw a conclusion on similar geometric figures

Two geometric
figures are
similar if and
only if they have
the same angles
and different
size

Teacher self-
evaluation

The lesson is well conducted when the expected outcome are attained




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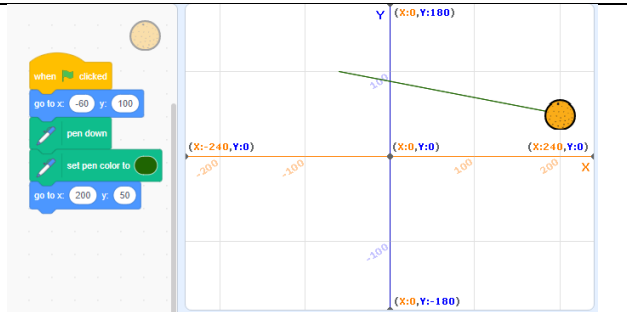


LESSON PLAN Math senior 4

Term	Date	Subject	Class	Unit	Lesson	Duration	Class Size
-----	Mathematics	Senior 4	13	2	40 minutes	25
Type of special Educational Needs to be catered for in this lesson and number of learners in each category				Students with learning difficulties			
Unit title	Points, straight lines and circles in 2D						
Key Unit competence	By the end of this lesson, the learner should be able to define the straight line, given two points and direction vector.						
Title of the lesson	Points and straight lines						
Instructional objective	By the end of this lesson, the learner should be able to use scratch to represent a line defined by two points in 2D.						
Plan for this Class (location: in/outside)	This class will be held indoors						
Learning Materials (For all learners)	Learners should have computers with scratch program.						
References	Rwandan mathematics students book senior 4						



Timing for each step	Description of teach and learning activity		
40 minutes	Teacher activities	Learner activities	
Introduction 10'	<p>Guide learners to position a sprite in different points in XY grid.</p> <p>Demonstration Students can position a point by using go to xy block or by direct change the coordinates of x and y in the menu panel</p> 	Learners follow instructions provided by the teacher to position spite in XY grid.	Critical thinking enhanced by coding using scratch, Communication enhanced throug group discussion
Development of the lesson 20 minutes	<p>-Ask learners to draw a line representing the path of the moving position from one point to another.</p> <p>Demonstration:</p>	<p>-Learners join group for discussion and present their findings.</p> <p>Discuss about different steps followed to draw a line.</p>	<p>Help learners slow learners</p> <p>Critical thinking and cooperation enhanced by coding through scratch and group discussion</p>

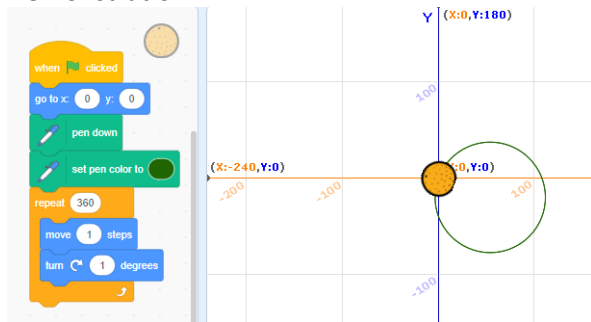


Discuss about different steps followed to draw a circle.

Discuss the difference between circle and straight line.

Ask learners to draw a circle from a given position

Demonstration:



Exercise

Ask learners to position two sprite in different location and represent a line joining them. And a circle with

Conclusion and evaluation 10 minutes	Guide learners to draw different lines in XY grid	Learners draw different lines in XY grid.	
Teacher self-evaluation	The lesson is well conducted when the expected outcome are attained		



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LESSON PLAN Physics senior 2

Term	Date	Subject	Class	Unit	Lesson	Duration	Class Size
1		Physics	S2	2	Lesson2	40 minutes	40
Type of special Educational Needs to be catered for in this lesson and number of learners in each category				Slow learners			
Unit title		Qualitative analysis of linear motion					
Key Unit competence		By the end of this unit, I should be able to describe objects in motion in one dimension using the principles of kinematics.					
Title of the lesson		Graphs of linear motion (distance –graphs)					
Instructional objective		Explain distance-time graphs, find the position of the body, and write its coordinates at different positions.					
Plan for this Class (location: in/outside)		Inside the classroom					
Learning Materials (For all learners)		Learners' books, Teacher's books, chalk board, scratch App, rulers, chalks, computer					
References		physics for Rwandan school student book 2					

Timing for each step	Description of teach and learning activity		Generic competences and Cross cutting issues to be addressed + a short explanation
	Teacher activities	Learner activities	
Introduction 5 minutes	<ul style="list-style-type: none"> Show the teaching aids. 	Follow the scratch program and locate different points	<ul style="list-style-type: none"> Critical thinking Cooperation



	<ul style="list-style-type: none"> Using scratch program having an object moving in a Cartesian plane. Ask learners to locate different positions of the body 	(coordinates) of the body	<ul style="list-style-type: none"> Gender education
<p>Development of the lesson 25 minutes</p>	<ul style="list-style-type: none"> Ask learners to draw the graph in their notebooks as seen in presentation Facilitate learners in this activity Ask learners what they think of different types of lines representing in the graph 	<ul style="list-style-type: none"> Respond on different questions In groups of five draw the graph in their notebook Presentation of their graphs 	<ul style="list-style-type: none"> Critical thinking Cooperation Corona virus protection measures



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<p>Conclusion 10 minutes</p>	<ul style="list-style-type: none"> • Evaluate the learner's activity • Compare different graphs of different groups • Clarify the activity • Give some homework 	<ul style="list-style-type: none"> • Ask questions • Take short note • Take homework 	<p>Communication Cooperation</p>
<p>Teacher self-evaluation</p>			



LESSON PLAN Physics Senior 4

Term	Date	Subject	Class	Unit	Lesson	Duration	Class Size
1		Physics	S4	8	Lesson3	80 minutes	40
Type of special Educational Needs to be catered for in this lesson and number of learners in each category				slow learners and students with vision problem.			
Unit title	Projectile and uniform circular motion						
Key Unit competence	By the end of this unit, the learner should be able to analyze and solve problems related to projectile and circular motion						
Title of the lesson	Graphs of projectile motion						
Instructional objective	Learners will be able to interpret the graph of projectile motion (Projectile important positions)						
Plan for this Class (location: in/outside)	Inside and outside the classroom						
Learning Materials (For all learners)	Learners' books, Teacher's books, chalk board, scratch App, rulers, chinks, computer, ball						
References	Physics for Rwandan school student book 4						

Timing for each step	Description of teach and learning activity		Generic competences and Cross cutting issues to be addressed + a short explanation
	Teacher activities	Learner activities	
Introduction 10 minutes	<ul style="list-style-type: none"> Show the teaching aids. 	Follow the scratch program and locate different points	<ul style="list-style-type: none"> Critical thinking Cooperation Gender education

	<ul style="list-style-type: none"> Using scratch program having an object(ball) moving in a Cartesian plane. Ask learners to locate different positions of the ball and make comments 	(coordinates) of the ball	
<p>Development of the lesson 50 minutes</p>	<ul style="list-style-type: none"> Ask learners to draw the graph in their note books as seen in presentation Facilitate learners in this activity Ask learners what do they think of different types of lines representing in the graph Listen to learners' answers note them down 	<ul style="list-style-type: none"> Respond on different questions In groups of five draw the graph in their notebook Presentation of their graphs Brainstorm with their neighbors what could be the reason of their observation 	<ul style="list-style-type: none"> Critical thinking Cooperation Corona virus protection measures

	and comment on them		
Conclusion 20 minutes	<ul style="list-style-type: none"> • Evaluate the learners' activity by giving an exercise and mark it. • Compare different graphs of different groups • Clarify the activity • Give a homework 	<ul style="list-style-type: none"> • Ask questions • Take short note • Take homework • Answer the given exercise 	Communication Cooperation Critical thinking
Teacher self-evaluation			