**GRADE 9 RATIONALIZED INTEGRATED SCIENCE SCHEMES OF WORK-TERM 2**

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| **Week**  | **Lesson**  | **Strand** | **Sub-strand** | **Lesson Learning Outcome**  | **Learning Experiences** | **Key Inquiry Question**  | **Learning Resources**  | **Assessment**  | **Reflection**  |
| 1 | 1 | Living Things and Their Environment. | Nutrition in Animals: Process of Digestion  | By the end of the lesson, the learner should be able to:-State the meaning of digestion in human beings.-Use digital or print resources to search for information on the process of digestion in human beings.-Appreciate the process of digestion in human beings. | In groups,learners are guided to:-brainstorm and present the meaning of digestion.-use the digital or print resources to search for information on the process of digestion in human beings.-identify the organs involved in the process of digestion in human beings.-discuss the process of digestion in human beings and present in class.sketch the human digestive system and label the different organs involved. | What is digestion?Which process are involved in the process of digestion? | Spark Integrated Science pg 77.Charts.Lesson notes.Digital resources. | Written Assessment.Oral questions.Oral discussion.Checklists.Assessment rubrics. |  |
|  | 2 | Living Things and their Evironment | Nutrition in Animals  | By the end of the lesson,the learner should be able to:-State the roles of the different organs involved in the process of digestion.-Use digital devices to search and watch video clips on the process of digestion.-Acknowledge the processes involved in digestion. | In groups,learners are guided to:-use digital devices to search and watch video clips explaining the process of digestion in human beings.-individually,take notes on the specific processes and structures involved in each stage of digestion.-discuss the role of the various organs such as mouth, stomach, small intestines and large intestines. | What are the key steps involved in the process of digestion?What are the roles of the different organs involved in the process of digestion? | Spark Integrated Science pg 78 & 80.Digital devices.Video clips.Lesson notes. | Assessment rubrics.Checklists.Oral discussion.Oral questions.Written Assessment. |  |
|  | 3 & 4 | Living Things and their Evironment. | Nutrition in Animals. | By the end of the lesson, the learner should be able to:-Outline the procedure for demonstrating absorption and digestion using an artificial intestines.-Carry out an experiment to demonstrate absorption and digestion using an artificial intestine.-Enjoy carrying out the experiment while observing safety. | In groups,learners are guided to;-identify the requirements for the experiment.-outline and discuss the steps to follow in an experiment to demonstrate absorption and digestion.-collaborate in demonstrating absorption and digestion using an artificial intestine.-observe and record the observations made from the experiment.-discuss their observations and present in class. | How do test for starch and reducing sugars? | Spark Integrated Science pg 78-79.Laboratory.Beakers, Plastic syringes, iodine solution.Benedict's solution, droppers & starch suspension. | Observation schedule.Oral questions.Checklists.Portfolios.Practical Assessment.Oral discussion. |  |
|  | 5 |  | Nutrition in Animals. | By the end of the lesson, the learner should be able to:-Explain the meaning of propulsion in the process of digestion.-Use digital or print resources to search for information on the mechanisms involved in propulsion.-Value the process of propulsion in digestion of food. | In groups or pairs,learners are guided to;-explain the meaning of propulsion in the process of digestion.-use digital devices to search for information on the mechanisms involved in propulsion: peristalsis, segmentation and sphincters.-take notes on their findings and discuss the findings.-explain the importance of propulsion in the digestion process. | Why is propulsion important in the digestion of food? | Spark Integrated Science pg 80.Digital devices.Lesson notes. | Oral discussion.Written Assessment.Checklists.Assessment rubrics.Oral questions. |  |
| 2 | 1 |  | Nutrition in Animals.Self-Assessment. | By the end of the lesson, the learner should be able to:-Attempt assessment questions on the sub-strand: Nutrition in animals.-Embrace teamwork as they tackle the questions on the sub-strand. | In groups,pairs or individually,learners are guided to:-collaborate in answering the assessment questions on the sub-strand; Nutrition in animals. |  | Spark Integrated Science pg 81.Teacher's Guide. | Assessment rubrics.Written Assessment.Learner's Profile. |  |
|  | 2 | Living Things and Their Environment. | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-Identify the parts of a flower.-Draw and label the parts of a flower.-Appreciate the different parts of a flower. | In groups,learners are guided to:-brainstorm and present the meaning of reproduction.-differentiate between sexual and asexual reproduction.-use digital or print resources to search for pictures of flowers.-study the pictures and identify the parts of a flower.-draw and label the parts of a flower on charts and exercise books and display their drawings in class. | How do plants reproduce? | Spark Integrated Science pg 82.Charts.Drawing materials.Digital devices.Lesson notes. | Assessment rubrics.Checklists.Written Assessment.Oral questions.Oral discussion. |  |
|  | 3 | Living Things and Their Environment. | Reproduction in Plants. | By the end of the lesson, the learner should be able to:-Outline the functions of parts of a flower.-Use digital or print resources to search for information on the parts of the flowers.-Acknowledge the functions of the different parts of a flower. | In groups or pairs,learners are guided to;-use print materials or digital devices connected to the Internet to find out information on the parts of a flower and their functions.-take notes on the functions of the different parts of a flower.-collaboratively discuss the functions of the parts of a flower.-present their findings to the class. | What are the functions of the different parts of a flower? | Spark Integrated Science pg 82-84.Lesson notes.Digital devices. | Assessment rubrics.Checklists.Oral discussion.Oral questions.Written Assessment. |  |
|  | 4 & 5 | Living Things and Their Environment. | Reproduction in Plants. | By the end of the lesson, the learner should be able to:-Outline the procedure for conducting an experiment on scientific observation of the parts of a flower.-Conduct a practical activity to observe and dissect a flower to find out its parts.-Observe safety as they carry out the experiment. | In groups,learners are guided through the procedure for carrying out an experiment on observation and dissection of the flower to find out its parts.-in groups, learners are guided to gather flowers from the school surrounding.-discuss and identify the various parts of the flowers gathered.-collaborate in examining how the different parts of the flower are connected.-in groups,learners to carefully dissect and observe the different parts of a flower.-record and explain the observations made and then present to the class. | Which part is exposed when the petals are removed? | Spark Integrated Science pg 84-85.Large Whole Flowers.Hand lens.Scissors, razor blades or scapel.Manilla papers.Laboratory. | Checklists.Observation schedule.Practical Activities.Assessment rubrics. |  |
| 3 | 1 | Living Things and Their Environment. | Reproduction in Plants. | By the end of the lesson, the learner should be able to:-State the meaning of pollination.-Use digital or print resources to search for information on self-pollination.-Appreciate the process of self-pollination in plants. | In groups,learners are guided to:-use digital or print resources to search for the meaning of term pollination.-identify the types of pollination in plants.-use digital or print resources to search for information on self-pollination and examples of plants that self-pollinate.-discuss their findings and take short notes on self-pollination.-study pictures and identify a picture that shows self-pollination.-sketch a diagram showing self-pollination in plants. | How does reproduction in plants occur?What is self-pollination? | Spark Integrated Science pg 85-86.Digital devices.Lesson notes.Pictures. | Assessment rubrics.Checklists.Oral questions.Oral discussions.Written Assessment. |  |
| 2 | Living Things and Their Environment. | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-Describe cross-pollination in plants.-Draw a diagram illustrating cross-pollination in plants.-Appreciate the cross-pollination in plants. | In groups,learners are guided to;-use digital and print resources to search for information on cross-pollination.-discuss their findings on cross pollination and make short notes.-study pictures in learner`s book or digital device and identify that shows cross pollination.-sketch a drawing that illustrates cross-pollination in plants. | How does cross-pollination occurs in plants? | Spark Integrated Science pg 85-86.Lesson notes.Digital devices.Pictures. | Assessment rubrics.Checklists.Oral discussions.Oral questions.Written Assessment. |  |
| 3 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-Identify the differences between cross-pollination and self-pollination in plants.-Use digital or print resources to search for information on the differences between self-pollination and cross-pollination.-Acknowledge the differences between cross-pollination and self-pollination. | In groups,learners are guided to;-brainstorm and share the differences between self-pollination and cross-pollination.-use digital and print resources to search for information on the differences between cross-pollination and self-pollination in plants.-discuss the differences between self-pollination and cross-pollination in plants and present to the class.-make a summary table showing the differences between self-pollination and cross-pollination. | What is the difference between cross-pollination and self-pollination? | Spark Integrated Science pg 86.Lesson notes.Digital devices.Manilla papers.Rulers and Marker pens. | Assessment rubrics.Checklists.Oral questions.Oral discussion.Written Assessment. |  |
| 4 |  | Reproduction in Plants. | By the end of the lesson, the learner should be able to:-Identify the agents of pollination in plants.-Use digital devices to search and watch video clips of the behaviour of the pollinating agents.-Acknowledge the agents of pollination in plants. | In groups,learners are guided to;-brainstorm and share on the agents of pollination in plants.-identify the agents of pollinations.-classify the agents of pollinations as either biotic or abiotic.-use digital devices to search and observe the behaviour of pollinating agents.-take notes on the observed behaviours of the pollinating agents. | What is the difference between biotic and abiotic agents of pollination?Which agents of pollination do you know? | Spark Integrated Science pg 87-88.Digital devices.Internet.Video clips or animations.Lesson notes.Charts. | Assessment rubrics.Checklists.Oral questions.Oral discussions.Written assessment. |  |
| 5 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-Explore pollination agents within the school compound and neighbourhood.-Have fun in exploring pollination agents within the school compound and neighbourhood | -As a class,learners are guided through the aim and steps for the activity.-list the requirements for the practical activity.-in groups,learners to collaborate in observing closely the flowers and any visiting insects,birds or animals using the handlens.-take notes or sketches of what they see.-record their observations about the pollinator`s behaviours.-use digital devices to take photographs to document their observations in a portifolios.-discuss and share their findings. | What types of pollinators did you observe?How did the pollinators interact with the flowers? | Spark Integrated Science pg 89-90.0bservation sheets.Magnifying glasses.Cameras.Digital devices for capturing videos and photos.School compound. | Observation schedule.Checklists.Portifolios.Practical activity. |  |
| 4 | 1 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson, the learner should be able to:-Outline the adaptations of flowers to wind pollination.-Use digital or print resources to search for information on adaptations of flowers to wind.-Acknowledge the adaptations of flowers to wind pollination. | In groups,learners are guided to;-brainstorm and present the meaning of adaptations of flowers to wind and insect pollination.-use print materials or digital devices to search for information on the adaptations of flowers to wind.-look for details on how the flowers are structured ,what features they have and how the features help in pollination.-take notes on their findings.-discuss the adaptations of flowers to wind pollination and present to the class.-watch a short clips on wind-pollinated flowers. | How are flowers adapted to wind pollination? | Spark Integrated Science pg 90-92.Lesson notes.Digital devices.Video clips.Internet. | Assessment rubrics.Checklists.Written Assessment.Oral discussions.Oral questions. |  |
|  | 2 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-Outline the adaptations of flowers to insect pollination.-Use digital or print resources to search for information on adaptations of flowers to insect pollination.-Acknowledge the adaptations of the flowers to insects. | In groups,learners are guided to;-use digital or print media to search for information on the adaptations of flowers to insect pollination.-identify the adaptations of flowers to insect pollination and take short notes in exercise books.-discuss the adaptations of flowers to insect pollination and present to the class.-use digital devices to watch video clips on insect-pollinated flowers. | How are flowers adapted to insect pollination? | Spark Integrated Science pg 92-93.Lesson notes.Digital devicesInternet.Video clips. | Assessment rubrics.Checklists.Oral questions.Oral discussions.Written Assessment. |  |
|  | 3 & 4 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-Study samples of flowers that exhibit adaptations to agents of pollinations.-Draw and label wind-pollinated and insect-pollinated flowers.-Show interest and curiousity in studying samples of wind and insect-pollinated flowers. | -As a class ,learners are guided through the aim and steps for the practical activity.-in groups,learners to collaborate in gathering samples of flowers that exhibit adaptations to agents of pollinationnsuch as wind and insect-pollinated flowers.-observe the flowers closely and take note of the structures,shapes,colours and any other outstanding features.-discuss the adaptations observed from the samples of flowers.-take turns in drawing diagrams of the flowers observed.-label the different parts of the flowers that are relevant to their adaptations for pollination.-display their drawings in class for assessment and feedback. | Which adaptations did you notice serve to attract insects I insect-pollinated flowers?Which adaptations did you notice that aid in dispersing pollen through the air? | Spark Integrated Science pg 93.Samples of wind-pollinated and insect-pollinated flowers.LaboratoryDrawing materials;pencil,papers,manillas and marker pens. | Assessment rubrics.ChecklistsOral questions.Oral discussionObservation schedule.Practical activity. |  |
|  | 5 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-State the meaning of agrochemicals.-Use digital devices to search for information on the effects of agrochemicals on pollinating agents and reproduction in plants.-Acknowledge the effects of agrochemicals on pollinating agents and reproduction in plants. | In groups,learners are guided to;-brainstorm and present the meaning of agrochemicals.-give examples of agrochemicals.-use digital devices to search for information on the effects of agrochemicals on pollination agents and its effects on reproduction of plants.-take notes of their findings in books.-discuss the effects of agrochemicals on pollination agents and its effects on reproduction of plants.-present their findings in class. | What are some effects of agrochemicals on pollinating agents?How do agrochemicals impact plant reproduction? | Spark Integrated Science pg 94.Lesson notes.Digital devices.Internet. | Assessment rubrics.Written Assessment.Oral questions.Oral discussion. |  |
| 5 | 1 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson, the learner should be able to:-Describe fertilization and seed formation in flowering plants.-Use digital devices or print resources to search for information on fertilization and seed formation in flowering plants.-Acknowledge the process of fertilization and seed formation in flowering plants. | In groups,learners are guided to;-use digital devices or print resources to search for information on fertilization and seed formation in flowering plants.-discuss the process of fertilisation and seed formation in flowering plants and present their findings in class.-collaboratively study illustrations or clips on fertilization and seed formation.  | How does fertilization and seed formation occur in plants? | Spark Integrated Science pg 95-96.Digital devices.Lesson notes.Video clips.Pictures. | Assessment rubrics.Checklists.Written Assessment.Oral discussion.Oral questions. |  |
| 2 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-Describe fruit formation in flowering plants.-Use digital or print resources to search for information on fruit formation in flowering plants.-Acknowledge the steps involved in fruit formation in flowering plants. | In groups,learners are guided to;-explain the meaning of fruit formation in flowering plants.-Use digital devices or print media to search for information on the process of fruit formation in flowering plants.-discuss the process of fruit formation in flowering plants and present in class.-make short notes on the process of fruit formation in flowering plants.-watch short clips on the process of fruit formation. | How does fruit formation occur in flowering plants? | Spark Integrated Science pg 97-98.Digital devices.Lesson notes.Video clips. | Assessment rubrics.Written Assessment.Oral discussion.Oral questions. |  |
| 3 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-Explain the significance of fertilization and fruit formation in flowering plants.-Use digital devices or print media to search for information on significance of fertilization and fruit formation.-Value the process of fertilization and fruit formation in plants. | In groups,learners are guided to;-brainstorm and share the importance of fertilization and fruit formation in plants.-use digital or print resources to search for information on the significance of fertilization and fruit formation.-discuss the significance of fertilization and fruit formation in plants.-take short notes on the significance of fertilization and fruit formation in plants. | Why is fertilization and fruit formation important? | Spark Integrated Science pg 98.Lesson notes.Digital devices. | Written Assessment.Oral questions.Assessment rubrics.Checklists.Oral discussion. |  |
| 4 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson, the learner should be able to:-Describe the modes of seed and fruit dispersal in plants.-Use digital or print resources to search for information on the wind and water modes of seed and fruit dispersal.-Appreciate the different modes of seed and fruit dispersal. | In groups,learners are guided to;-explain the meaning of fruit and seed dispersal.-identify the modes of fruit and seed dispersal.-discuss the wind and water modes of seeds and fruit dispersal.-search for examples of seeds and fruit dispersed by wind and water modes. | Which modes of seed and fruit dispersal do you know? | Spark Integrated Science pg 100-101.Digital devices.Lesson notes.Flashcards. | Assessment rubrics.Checklists.Written Assessment.Oral questions.Oral discussion. |  |
| 5 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-Identify the modes of fruit and seed dispersal.-Use digital or print resources to search for information on animal and self-dispersal modes of fruit and seed dispersal.-Appreciate the different modes of seed and fruit dispersal. | In groups,learners are guided to;-use digital or print resources to search for information on animal and self-dispersal.-discuss the animal and self-explosion modes of fruit and seed dispersal.-give examples of seeds and fruits dispersed through self-explosion and animal dispersal. | Which seeds and fruits are dispersed by animals and self-explosion? | Spark Integrated Science pg 101-102.Digital devices.Lesson notes. | Assessment rubrics.Written assessment.Oral questions.Oral discussion. |  |
| 6 | 1 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson, the learner should be able to:-Collect various fruits and seeds in the locality.-Categorise the fruits and seeds based on their mode of dispersal.-Enjoy categorizing the locally available fruits and seeds based on mode of dispersal. | In groups,learners are guided to;-collect the different fruits and seeds from their locality.-observe the collected the collected fruits and seeds.-discuss and categorise the fruits and seeds collected based on their mode of dispersal.-present their findings in class. | Which fruits and seeds are found in your locality? | Spark Integrated Science pg 103.Fruits and seeds.School and the surrounding environment.Lesson notes. | Assessment rubrics.Practical Activities.Portifolios.Checklists.Observation schedule. |  |
| 2 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-State the importance of fruit and seed dispersal in the environment.-Use digital or print resources to search for information on the importance of seed and fruit dispersal in the environment.-Acknowledge the importance of seed and fruit dispersal in the environment. | In groups,learners are guided to;-brainstorm and present the importance of seed and fruit dispersal in the environment.-use digital devices or print resources to search for information on the importance of seed and fruit dispersal in the environment.-discuss the importance of seed and fruit dispersal in the environment. | What is the importance of fruit and seed dispersal in the environment? | Spark Integrated Science pg 100.Lesson notes.Digital devices. | Written Assessment.Checklists.Assessment Rubrics.Oral questions.Oral discussion. |  |
| 3 | Living Things and Their Environment | Reproduction in Plants. | By the end of the lesson,the learner should be able to:-Identify the roles of flowers in nature.-Use digital or print resources to search for information on role of flowers in nature.-Recognize the role of flowers in nature. | In groups,learners are guided to;-brainstorm and present the roles of flowers in nature.-use digital or print resources to search for information on the roles of flowers in nature.-discuss the roles of flowers in nature and present in class.-take a walk around the school compound to observe and appreciate the diverse beauty and role of flowers | What is the role of flowers in nature?What is it important to protect flowers and their pollinators? | Spark Integrated Science pg 102-103.Lesson notes.Digital devices.School environment. | Assessment rubrics.Written Assessment.Checklists.Observation schedule.Oral questions.Oral discussion. |  |
| 4 | Living Things and Their Environment | Reproduction in Plants.Assessment. | By the end of the lesson, the learner should be able to:-Attempt assessment questions on the sub-strand. | In pairs or individually,learners are guided to;-answer the assessment questions on the sub-strand. |  | Spark Integrated Science pg 104.Assessment questions. | Written Assessment.Checklists.Learner`s profile. |  |
| 5 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson,the learner should be able to:-State the meaning of biotic components of the environment.-Use digital or print resources to search for information on biotic interrelationship.-Acknowledge the different types of biotic interrelationships. | In groups,learners are guided to;-explain the meaning of biotic components and give examples.-study pictures of different animals and identify how the animals depend on each other.-discuss the meaning of biotic interrelationships.-use digital devices or print resources to search for information on the different types of biotic interrelationships.-describe the herbivory,parasitism,mutualism,saprophytism,predation and competition biotic interrelationships. | What are biotic components of the environment?What is the role of living factors in environment? | Spark Integrated Science pg 105-106.Digital devices.Lesson notes.Pictures. | Assessment rubrics.Checklists.Written assessment.Oral discussion.Oral question. |  |
|  7 | 1 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson, the learner should be able to:-Identify the biotic interrelationship in the environment.-Investigate the interrelationships between biotic factors of the environment in their locality.-Observe safety as they conduct the activity. | In groups,learners are guided to;-walk around the school environment and observe the biotic factors present.-collaborate in investigating the interrelationships between biotic factors of the environment in their environment.-take notes on the interactions and relationships observed between the organisms and their environment.-use digital devices to search for information on the roles of the organisms in the ecosystem and how they interact with one another. | How do the organisms in the environment interact with one another? | Spark Integrated Science pg 107.School environment.Magnifying glasses.Cameras.Digital devices.Pens & notebooks. | Practical Activity.Oral discussion.Oral question.Checklists.Observation schedule. |  |
|  | 2 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson,the learner should be able to;-State the meaning of abiotic components of the environment.-Use digital or print resources to search for information on the abiotic components of the environment.-Acknowledge the abiotic components of the environment. | In groups,learners are guided to;-explain the meaning of abiotic components of the environment.-identify the examples of abiotic components of the environment.-use digital or print resources to search for information on the abiotic components of the environment.-discuss the abiotic components of the environment | What are the abiotic components of the environment?What is the role of non-living factors in the environment? | Spark Integrated Science pg 108-109.Lesson notes.Digital devices. | Assessment rubrics.Oral discussions.Oral question.Written Assessment. |  |
|  | 3 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson,the learner should be able to:-Identify the abiotic components of the environment.-Use digital devices to search for information on the effects of abiotic factors on living organisms.-Acknowledge the effects of abiotic factowhrs on living organisms. | In groups,learners are guided to;-mention the abiotic components of the environment.-use digital or print resources to search for information on the effects of abiotic factors on living organisms.-discuss the effects of abiotic factors on living organisms. | What are the effects of abiotic factors on living things? | Spark Integrated Science pg 108-109.Lesson notes.Digital devices. | Written Assessment.Oral question.Oral discussions.Assessment rubrics. |  |
|  | 4 & 5 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson, the learner should be able to:-Outline the procedure for demonstrating the effects of light,temperature,wind and pH on plants.-Carry out an experiment to demonstrate the effects of light,temperature,wind and pH on plants.-Embrace teamwork in carrying out the experiment. | In groups,learners are guided to;-identify and prepare the requirements for the experiment.-outline and discuss the procedure for demonstrating the effects of light,wind,temperature and Ph on plants.-carry out an experiment to demonstrate the effects of light,wind,temperature and pH on plants.-record the observations from the experiment.-discuss their observations and present in class. | What is your conclusion on how light,temperature and wind affect plants? | Spark Integrated Science pg 109-111.Water.Electric bulbs of different colours.Metre rule.Glass funnel.Sodium hydrogen carbonate.Text-tubes.Stands & two paper clips.Dilute hydrochloric acid.Sodium hydroxide solution.Water plant.Beaker,thermometer & straw.Source of heat.Laboratory. | Demonstrations.Checklists.Observation schedule.Assessment rubrics. |  |
| 8 |  **MID-TERM BREAK** |
| 9 | 1 & 2 | Living Things and Their Environment |  The Interdependence of Life. | By the end of the lesson, the learner should be able to:-Outline the procedure for demonstrating the effect of light, temperature,wind and humidity on plants.-Carry out an experiment to demonstrate the effect of light, temperature,wind and humidity on plants.-Acknowledge the effect of light, temperature,wind and humidity on plants. | In groups,learners are guided through the procedure for demonstrating the effect of light, temperature,wind and humidity on plants.-In groups,learners are guided to prepare the requirements for the experiment and set-up the experiment.-Collaborate in carrying out an experiment to demonstrate the effect of light, temperature,wind and humidity on plants.-Observe and record their observations on the experiment.-discuss their findings and present their conclusions. | What is your conclusion on how light, temperature and wind affect plants? | Spark Integrated Science pg 111-112.Fresh leafy shoot of the herbaceous plant.Potometer.Water, Jelly and Beakers.Scalpel, Rulers.Retort stand.Water trough.Laboratory.Electric bulbs of different colours.Polythene bag. | Assessment rubrics.Checklists.Experiments.Observation schedule.Oral discussion.Oral questions. |  |
|  | 3 & 4 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson,the learner should be able to:-Outline the procedure for demonstrating for effect of soil pH and fertility on plants.-Carry out an experiment to demonstrate the effect of soil pH and fertility on plants.-Acknowledge the effects of soil pH and fertility on plants. | -In groups, learners are guided through the procedure to demonstrate the effect of soil pH and fertility on plants.-In groups,learners are guided to prepare the requirements and set-up the experiment.-collaborate in carrying out an experiment to demonstrate the effect of soil pH and fertility on plants.-observe and record their observations.-discuss their findings and present their conclusions. | How does deficiency of soil fertility and pH affect plants? | Spark Integrated Science pg 113-114.Bean seeds.Blotting papers or newspapers.Distilled water.Beaker.Measuring cylinder.Laboratory.Potassium Nitrate.Magnesium sulphate.Potassium phosphate.Calcium nitrate.Iron (III) chloride. | Experiments.Checklists.Oral discussion.Oral questions.Observation schedule. |  |
|  | 5 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson,the learner should be able to:-Outline the procedure for demonstrating the effect of light and humidity on animals.-Carry out an experiment to demonstrate the effect of light and humidity on animals.-Acknowledge the effect of light and humidity on animals. | -In groups, learners are guided through the procedure for demonstrating the effect of light and humidity on animals.-in groups, learners are guided to prepare the requirements and set-up the experiment.-collaborate in conducting the experiment to demonstrate the effect of light and humidity on animals.-observe and record the observations made from the experiment.-discuss their findings and present their conclusions. | How does light and humidity affect animals? | Spark Integrated Science pg 113.Petri dishes.Woodlice.Plasticine.Wax.Cellotape.Dark cloth.Wet humus. | Experiments.Assessment rubrics.Checklists.Observation schedule.Oral questions.Oral discussion. |  |
| 10 | 1 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson, the learner should be able to:-State the meaning of energy flow in an ecosystem.-Use digital or print resources to search for information on living things and what they feed on.-Acknowledge the different living organisms and what they feed on. | In groups,learners are guided to:-explain the meaning of energy flow.-collaborate in mentioning the different living organisms in the environment.-use digital devices to search and identify what the mentioned living organisms feed on and note down.-use digital devices to search for the meaning of producer, primary consumer, secondary consumer and tertiary consumer in relation to an ecosystem.-discuss the meaning of producer, primary consumer, secondary consumer and tertiary consumer giving relevant examples.-walk around the school environment and identify the different living organisms and what they feed on. | What is energy flow in an ecosystem?What is the meaning of producer, primary, secondary and tertiary consumer in an ecosystem? | Spark Integrated Science pg 117-118.Digital devices.Lesson notes.School environment. | Oral questions.Oral discussion.Written Assessment.Checklists.Assessment rubrics. |  |
|  | 2 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson,the learner should be able to:-Differentiate between food web and food chain.-Identify the producer, primary,secondary and tertiary consumer in food chains and food webs.-Acknowledge the significance of food chains and webs in an ecosystem. | In groups,learners are guided to:-use digital or print resources to search for the meaning of food chain and food web.-discuss the differences between a food chain and food web using a relevant example.-study different pictures from the internet or books and identify those that shows the food webs and food chains.-Guide learners in studying and identifying the producer, primary consumer, secondary consumer and tertiary consumer from the food chains and food webs.-learners to present their findings in class. | What is the difference between food chain and food web? | Spark Integrated Science pg 119-120.Charts with food chains and food webs.Digital devices.Lesson notes.Pictures of food chains and food webs. | Assessment rubrics.Checklists.Written Assessment.Oral questions.Oral discussion.Rating scale. |  |
|  | 3  | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson,the learner should be able to:-Outline the steps for constructing a food chain in an ecosystem.-Construct food chains in an ecosystem.-Enjoy constructing food chains. | In groups,learners are guided through the steps for constructing simple food chains.-learners to observe keenly as the teacher illustrates how to construct food chains.-in groups, pairs or individually,learners to collaborate in constructing food chains in exercise books and manilla papers.-learners to present their constructed food chains in class for assessment and feedback. | How do you construct a food chain? | Spark Integrated Science pg 119.Charts showing food chains.Digital devices.Chalkboard and chalks.Lesson notes. | Assessment rubrics.Written Assessment.Oral questions.Oral discussion.Learner's profile.Rating scale.Portfolios. |  |
|  | 4 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson, the learner should be able to:-Outline the steps for constructing a food web.-Construct food webs in the ecosystem.-Enjoy constructing food webs from given ecosystems. | -In groups,learners are guided through the steps for constructing a food web.-Learners to observe the teacher as he/she illustrates how to construct food webs given information from an ecosystem.-in groups or pairs, learners to study information from given ecosystems.-in groups or pairs,learners to collaborate in constructing food webs from the given information on manilla papers and exercise books.-learners to present their constructed food webs in class for assessment. | How do we construct a food web? | Spark Integrated Science pg 119.Charts showing food webs.Lesson notes.Chalkboard and Chalks.Manilla papers. | Assessment rubrics.Checklists.Written Assessment.Oral questions.Illustrations.Portfolios.Rating scales.Oral discussion. |  |
|  | 5 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson,the learner should be able to:-Describe the effects of human activities on the environment.-Use digital or print resources to search for information about the effects of human activities on the environment.-Acknowledge the effects of human activities on the environment. | In groups,learners are guided to:-brainstorm and present the different human activities that interfere with the ecosystem.-collaborate in searching for information on the effects of human activities on the environment.-learners to individually take notes on their findings.-collaborate in discussing the effects of human activities on the environment and present their findings in class.-outline ways we can reduce the negative effects of human activities on the environment. | What are the effects of human activities on the environment?How can we reduce the negative effects of human activities on the environment? | Spark Integrated Science pg 120.Lesson notes.Digital devices. | Oral questions.Checklists.Assessment rubrics.Written Assessment.Oral discussion. |  |
| 11 | 1 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson, the learner should be able to:-Define the term decomposers.-Use digital devices and print resources to research on the role of decomposers in an ecosystem.-Appreciate the role of decomposers in an ecosystem. | In groups,learners are guided to:-brainstorm and present the meaning of decomposers.-search the internet or textbooks for information on the role of decomposers in the ecosystem.-learners to note down their findings.-discuss the role of decomposers in an ecosystem and present their findings. | What is the role of decomposers in an ecosystem? | Spark Integrated Science pg 121-122.Lesson notes.Digital devices  | Assessment rubrics.Checklists.Written Assessment.Oral questions.Oral discussion. |  |
|  | 2 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson,the learner should be able to:-State the importance of decomposers in recycling nutrients.-Use digital or print resources to search for information on the importance of decomposers in recycling nutrients.-Acknowledge the importance of decomposers in recycling nutrients. | In groups,learners are guided to;-use digital devices to search for information on the importance of decomposers in recycling nutrients.-dicuss the importance of decomposers in recycling nutrients.-learners to present their findings in class. | What is the importance of decomposers in recycling nutrients? | Spark Integrated Science pg 121-122.Lesson notes.Digital devices. | Assessment rubrics.Checklists.Written Assessment.Oral questions.Oral discussion. |  |
|  | 3 & 4 | Living Things and Their Environment | The Interdependence of Life. | By the end of the lesson,the learner should be able to:-Outline the steps for carrying out an experiment on identifying role of decomposers in an ecosystem and their importance in recycling nutrients.-Carry out experiments to investigate the role of decomposers in an ecosystem and their importance in recycling nutrients.-Enjoy carrying out the experiment. | -In groups,learners are guided through the procedure for an experiment to identify the role of decomposers in an ecosystem and their importance in recycling nutrients.-learners are guided to prepare the necessary requirements for the experiment.-In groups,learners to collaborate in conducting the experiments to identify the role of decomposers in an ecosystem and their importance in recycling nutrients.-learners to observe their experiments after a week and two weeks and record their observations.-learners to discuss their observations and present their conclusion. | What happened to the slices of bread and ugali used after the two weeks? | Spark Integrated Science pg 121.Slices of bread.Pieces of ugali.2 Petri dishes.Hand lenses.Water.Polythene paper. | Practical Activities.Checklists.Oral presentation.Observation schedule. |  |
|  | 5 | Living Things and Their Environment | The Interdependence of Life.Assessment. | By the end of the lesson,the learner should be able to:-Attempt Assessment questions on the sub-strand. | In pairs or individually,learners are guided to answer the questions on the sub-strand: The Interdependence of Life. |  | Spark Integrated Science pg 122-124.Teacher's Guide. | Assessment rubrics.Checklists.Written Assessment. |  |
| 12 | 1 | Force and Energy. | Curved Mirrors. | By the end of the lesson, the learner should be able to:-Identify the different types of curved mirrors.-Use digital devices to search for information on the types of mirrors.-Acknowledge the different types of mirrors used in our day to day lives. | In groups,learners are guided to:-brainstorm and present the meaning of mirrors.-identify the types of curved mirrors.-use digital devices or print resources to search for information on the concave mirrors,convex mirrors and parabolic mirrors.-note down their findings in exercise books.-describe the different types of curved mirrors: concave,convex, parabolic mirrors.-use digital devices to watch video clips on the different curved mirrors. | Which types of curved mirrors do you know? | Spark Integrated Science pg 125-126.Digital devices.Video clips.Lesson notes.Pictures.Spoons. | Assessment rubrics.Checklists.Oral discussion.Written Assessment. |  |
|  | 2 | Force and Energy  | Curved Mirrors  | By the end of the lesson,the learner should be able to:-Identify the terms associated with the curved mirrors.-Use digital or print resources to search for information on the terms associated with the curved mirrors.-Acknowledge the terms associated with the curved mirrors. | In groups,learners are guided to:-use digital devices to search and watch video clips on curved mirrors.-identify the terms associated with the curved mirrors from the video clips.-use digital or print resources to search for information on the meaning of the different terms associated with curved mirrors.-discuss the terms used in the curved mirrors and present in class. | What are the terms associated with the curved mirrors? | Spark Integrated Science pg 127-128.Lesson notes.Digital devices.Video clips. | Assessment rubrics.Checklists.Oral discussion.Oral questions.Written Assessment. |  |
|  | 3-5 | **REVISION**  |
| 13 | **END OF TERM 2 ASSESSMENT**  |
| 14 | **END OF TERM 2 BREAK.** |