Science (Class VII)

Learning Outcomes	*Source/Resources*	*Week-wise Suggestive Activities (to be guided by Parents with the help of teachers)*
The learner — • identifies different types of motions on the basis of observable features such as motion along a straight line or along a circular path etc. • differentiates between different types of motions on the basis of their properties such as the speed, change in direction of motion etc. • conducts simple investigations to seek answers to queries, e.g., change in time period on changing length of pendulum or mass of bob • measures and calculates time required to complete a task, cover a distance; speed of moving objects; time period of a simple pendulum, etc. • draws diagrams/ plots and interprets graphs e.g., distance-time graphs • constructs models	**NCERT/State Textbook** ***Theme: Moving Things, People and Ideas*** *Chapter: Motion and Time* Slow or Fast Speed Measurement of Time Measuring Speed Distance-Time Graph ttp://ncert.nic.in/textbook/pdf/gesc113.pdf Chapter 13 NCERT Science Textbook Class 7 Laboratory Manual in Science for Class VI-VIII ttp://www.ncert.nic.in/exemplar/labmanuals.html E-Resources developed by NCERT, which are available on NROER and also attached as QR Code in textbooks of NCERT.	**WEEK 1** ***The learner may be asked to*** • Observe his/her surroundings and make a table of different things which are in motion. Further classify these moving things according to their type of motion. The observations can further be divided into fast and slow moving things. • Write justifications for each entry you made in the table, i.e. why it has been kept in that column? • Draw the pictures/diagrams of your observations and decorate it. (Art integrated Learning) • Find the speed of hopping on one leg. (Activity 36 from the below link) http://ncert.nic.in/ncerts/l/fhelm205.pdf The activity may be modified so that it can be performed within the house or room. Use a regular stopwatch/ or stopwatch in the mobile. The distances can be changed so as to fit in within the available length. Then try to answer the questions given after the activity. • **Search on the internet how people used to measure time before the invention of modern clocks/watches**. (links should not be provided everywhere because our learners need to become independent learners). • **By using a time measuring device available in your house (clock, wrist watch or mobile) measure time required for different daily life activities.** For example, while cooking rice, pulses, filling one bucket of water, the time taken by a fan to completely come to rest after it is switched off, the time taken by ½ litre and 1 litre milk to boil under same conditions, etc. Record your observations in your copy

using materials from surroundings and explains their working, e.g. SUN DIAL, Simple Pendulum • discusses and appreciates stories of scientific discoveries • applies learning of scientific concepts in day-to-day life, e.g. in measuring speed of different moving objects • exhibits creativity in designing, planning, making use of available resources, etc. eg. Measuring distance in absence of standard scales by using objects of known lengths etc. • exhibits values of honesty, objectivity, cooperation, freedom from fear and prejudices etc such as reporting the findings honestly, supporting other friends in need etc		and discuss with your friends, elders or teachers. **WEEK 2** • **Project**: Make your own sundial. (For details, refer to your textbook or the internet.) • **Make a simple pendulum and find its time period**. (Activity 13.2 NCERT Textbook) • **Perform the above mentioned activity by changing the length of the pendulum and also by changing the mass of the bob.** Write your observations in each case. ➢ Do you observe any change in time-period on changing the length of the pendulum or mass of the bob? ➢ Search on the internet to find the reasons for your observations or you can discuss with your friends, elders or teachers. Caution: Perform all the activities under the guidance of elders. • **Measure speed of any rolling object**. (Activity 13.4 NCERT textbook) https://www.youtube.com/watch?v=SpyO-ty1j5o • Watch this programme and try to understand about different types of graphs and their nature. • Make a distance time graph for your toy car or any rolling object.Identify its type of motion and speed from this graph.
Learner: • identifies electric components on the basis of observable features, i.e., appearance, functions, etc. eg. Identifying Switch,	**Theme: How Things Work — *Electric Current and its Effects*** Symbols of Electric Components Heating Effect of Electric Current Magnetic Effect of	**WEEK- 3** ***The learner may be asked to*** **Identify the electric components used in the house. Draw their diagrams; write their names and symbols.** • Learners may take help from their textbook and also search on the internet for the symbols not available in the book. • Open the link given below

regulator etc on their function • differentiates between different effects of electric current, on the basis of certain observations eg. Heating effect, magnetic effect etc. • conducts simple investigations to seek answers to queries, e.g., effect of adding more number of cells in an electric circuit • relates processes with causes, e.g., heating of conducting wire, deflection in magnetic needle due to a current, etc. • explains processes, e.g., heating and magnetic effects of electric current, etc. • draws labelled diagrams and circuit diagrams of electric components, electric circuits, organ systems electric circuits; experimental set ups; etc. • constructs models using materials from surroundings and explains their working, e.g.,	Electric Current Electromagnet Electric Bell Chapter 14 NCERT Science Textbook Class VII http://ncert.nic.in/textbook/pdf/gesc114.pdf Exemplar Problems, Ch. 14, Class VII Science http://ncert.nic.in/ncerts/l/geep114.pdf Laboratory Manual in Science for Class VI-VIII http://www.ncert.nic.in/exemplar/labmanuals.html E-Resources developed by NCERT, which are available on NROER and also attached as QR Code in textbooks of NCERT. Chapter 13, Class VI NCERT http://ncert.nic.in/textbook/pdf/fesc113.pdf	https://www.youtube.com/watch?v=4IIT2s7Q1g8&feature=youtu.be **Watch the video carefully and try to make your own circuit for this and play with your family members**. • Open the link given below https://nroer.gov.in/5645d28d81fccb60f166681d/file/58871106472d4a1fef810c49 • **Watch the video carefully and try to make your own simple electric switch.** ***Note:*** *Instead of generator shown in the video you can use a combination of two dry cells and in place of crocodile clips you can use copper wires directly.* • **Make an electric circuit as shown in Fig. 14.7 in Ch. 14 of NCERT Textbook (Class VII Science).** ***Note:*** *Nowadays mostly we find LEDs instead of the bulb shown in the figure. If LED is available instead of the bulb shown in the figure, then make sure that you are connecting positive terminal of the cell to the longer leg of the LED.* For making these circuits, take help from your elders and try to find an old torch or other electrical devices from which you can collect the required items for your circuits. • **Make a simple electric circuit using few dry cells, LED or torch bulb and wires.** Observe the effect on intensity or glow of bulb on increasing the number of cells in the circuit. Repeat the activity with a fuse torch bulb and note the observations. Discuss the observation with your friends, elders and teacher. • Open the link given below https://nroer.gov.in/55ab34ff81fccb4f1d806025/file/5b4d793e16b51c01e4ec660a **It is an interactive simulation, play with the simulation to learn more about electric circuits.** ***Heating effect of electric current*** • **Make an electric circuit as shown in Fig. 14.7 or Fig. 14.9 or Fig. 14.10, Ch. 14**

electromagnets; electric fuse, etc. • discusses and appreciates stories of scientific discoveries eg. How magnetic effect of electric current was discovered etc. • applies learning of scientific concepts in day-to-day life, e.g., connecting two or more electric cells in proper order in devices; discussing the importance of electric fuse in the circuits etc. • exhibits creativity in designing, planning, making use of available resources, etc. eg. finding magnets from broken or non working speakers or headphones etc.		**NCERT Textbook (Class VII Science).** After keeping the switch ON for few seconds, touch the bulb (Fig. 14.7) or wire (Fig. 14.10) connected in the circuit. What have you observed? Discuss with your friends, elders and teacher about your observations. • **Collect information about various electrical equipments whose performances are based on the heating effects of electric current. This information can be collected by discussing with elders, friends, teachers or by surfing on internet. Try to identify the equipments in your house which work on this effect.** **WEEK-4** • **Make a circuit as suggested in Activity 14.4 in NCERT Textbook (Class VII Science), for understanding the purpose of a fuse in an electric circuit.** Discuss the importance of fuse in an electric circuit with your friends. **You can write a short narrative for emphasizing the need of an electric fuse in our household circuits. You can also make a poster showing the need of electric fuse in circuits.** • **Perform the activity 14.5 as suggested in NCERT Textbook (Class VII Science), for understanding the magnetic effects of electric current.** ***Note:*** *You may not have a magnetic needle in your house, for this you can use a magnetized pin fitted in cork or thermocol floating on water surface (Refer to Activity 6 Ch. 13 NCERT Text book Class VI[h]). You may have a magnet or try to find a magnet from the old radio, speakers or head phones which are unusable.* • Change the polarity of cell used or number of cells used in the circuit. • Note down your observations. Discuss your observations with your friends, elders or teacher.

		• **Open the link given below** https://www.youtube.com/watch?v=_a1EWahLuGY&feature=youtu.be **Watch the video carefully and try to understand how magnetic effect of current was discovered.** ***Project:*** *Make an electromagnet using dry cells, iron nail and insulated wire.* **During the project, try to find out answer of following questions:** • **What do you observe when number of turns is increased or decreased?** • **Do you observe if number of cells is increased or decreased in the circuit?** • **Note your observations and discuss with your friends, elders and teacher.** • **Try to find out the uses of electromagnets in our daily lives.** • **Write down the differences between a permanent magnet and an electromagnet.** • **Search on the internet and try to understand how an electric bell works. Which effect is responsible for its working?** • **Discuss your findings with your friends, elders and teacher.** ***Note:*** *Since everyone is supposed to stay at home, therefore all the communications with friends and teachers should be done through call or chat. Learners may take pictures or videos of their circuits/devices and can share with their friends and teachers.*