Introduction to Network
Lesson Plan: Class 01 / DL / 17

Overall goal of the lesson: In this class, children will be guided to learn the very basics of 'Networks' that a 6+ year old can understand and relate to. The idea is to make them think and figure out the general concept of networks. We will use examples from our immediate environment. For this lesson it will kept to simpler things such as spider's web, road network, ladder and rail networks.

Prior knowledge required: None.

MODULE 1:

Module time: 35 minutes
Goal: To introduce the the general concept of networks to children and give them several examples including computer network.
Description: Children will be introduced to the concept of networks (1) what is a network, examples from daily life, immediate environment(2) What is a network used for? To reach somewhere or to connect things.

Material required:
Physical:

1. One copy of the worksheet (Introduction to Networks Sheet C1P17) per child.
2. Writing material to solve the worksheet: pencil and eraser.

Electronic:
PPT Presentation for Introduction to Networks

Procedure Summary:

1. Distribute the worksheets (Introduction to Networks) to the children.
2. Read through the worksheet. Ask children in case they do not understand any question.

Procedure Details:

1. Start the class by asking the children if they know who Spiderman, the superhero, is. How can he climb up tall buildings and jump from one building to another without falling down? Let the children come up with the answer - Spiderman's superpower of creating a web. If no one knows about the character Spiderman, then simply move on to the presentation Slide 1 titled 'Before we begin...'. In case children are aware of the comic / fictional character of Spiderman, there is going to be some commotion and excitement. This is what we need to get started with the 'Introduction to Network' concepts. Let's use that energy to help children transition into the adjacent topic of a Spider. We will introduce network gently by means of spider's web. Later in the presentation, there will be examples of roads, ladder and railways.
2. Move to slide #2, 'Before we begin'. Ask the class about Spiders, see if they know what it is called in local language. Ask them to raise hands if they are afraid of a spider. Ask them if they have observed a spider closely, how many legs it has (Ans: 8). Query the children on the kind of food a spider eats. If they say insects, flies etc, ask them where does a spider live? Ask them if they have seen a spider in a web in the garden or in the corner of staircases / lobby / home. At this point, get their attention focused by asking them to draw a spider's web in their notebooks.
3. Next Slide, #3, is to make children think about how a spider catches a fly. In previous slide, we discussed what a spider eats - flies, insects etc. Ask the children if a spider can fly. Does it have wings. Ask them how a spider catches a fly it cannot fly on its own? The answer is Spider's web.
4. Slide #4: Next slide is about combining the thoughts around a Web, Spider and Catching a fly for food to help bringing in 'Network' concept later. Explain how an insect could get stuck in Spider's web - it is a trap for insect but a way to get food for spider. Explain how the web helps the spider to climb on thin silk like

threads and reach the food that is stuck in its web to eat it. Give example of a ladder - spider uses its web as a ladder to reach where it can find trapped food.

5. Slide #5: Spider has caught the fly - So far, we introduced the web, spider and fly and the next slide combines all that together for bringing in the concept of networks and their purpose. Explain to children that Spider's web is a way (mechanism) to catch food. The Web is an example of a network. A web is made up of fine silk like threads that is produced by Spider's saliva. Web is a Network of threads. Tell them that not all networks are meant to catch food. Network helps to connect things - in this case Spider with its food. Ask them to spell the word NETWORK loudly and write it in their notebooks.
6. In the slide #6, we bring in a simple definition of a Network. First bullet defines a network. Ask children how do you connect things? Answer: Rope, wires, wirelessly - give them example of Mobile phones and car radio's or radio's in general. The next bullet explains that the things that connect together to form a Network need not be all of the same type. In case of spider the things that connect together are 'silk like' threads that spider spins in a beautiful pattern called the web. Talk to the children and ask them if they have seen a Jungle-Gym in the kids' park. Tell them that it is a network of sorts with things such as slides, steps (ladder), tunnels, monkey ladder, bridges, rope climbing all put together for kids to play. Different things are connected together to create a play area for children. They can climb in one kind of swing, say a tunnel and then reach the other end of the play area going from one slide to another ladder to a bridge etc.
7. Slide #7 moves the discussion from Spider's web as an example of network to roads. Children can relate to roads. Before we introduce them into road network, let us discuss simple facts about road, connectivity and pathways. In the next few slides, we discuss the concept of network at an immediate level - classroom with its lanes between desks. Next, we expand the road network concept to roads within the city that connect different parts of the same city. Further, we bring in roads connecting different cities and (potentially) different countries. In Slide #7: let us initiate this discussion gently by first bringing in the general concept of roads and what they are for. Ask children how they come to school - walking, school bus or private vehicle. Involve the class by asking them to raise hands for each type of conveyance and help them understand that there are different ways to reach school. But all of them require roads. Ask children if they observe which roads they take to reach school - is it just a single road or do they multiple roads. Ask them how can we figure out that we have changed roads? Ans: Crossings and turns taken while travelling. At the end of this slide - help children understand that 'Roads' help us reach from one place to another. Roads 'connect' us to school and our home.
8. In Slide #8: we look at roads in our immediate surroundings - roads near us. First tell the children that roads help us reach school and the classroom we are in. Then ask them to look around themselves and see if there are any roads in the class. The answer is No. But there are lanes. Lanes are like mini roads. There is a different kind of traffic - no vehicles in class but children and teacher walk on these lanes to reach their desks. Ask children to count the number of lanes in the class. Draw their attention to the fact that lanes also form a network in the class. Lanes help children to reach their desks and teacher to walk around in the class and reach a student's desk if needed (if student is being naughty and not being attentive, for example).
9. Slide #9 helps children extends the concept of lanes and network of lanes in a classroom to roads in the city. Let the children discover the road network in the city. Ask them which part of the town/city they are from and show them on the blackboard that there are different roads that connect school to different parts of the city. Tell them that there are many cities in our country, ask them to name a few. Next, ask children the name of your city. Help them understand that just as different parts of the city are connected by roads, similarly different cities in our country are connected by roads and these are called 'Highways'. Ask them if they have been on a highway while travelling to a different city. Make children think and remember if they can spot any differences between a highway and city road. The next slide will have these answers so don't tell them now, let the children think for themselves.
10. Slide #10 is about Highway network. Help children revise - starting from the lanes in class, they are an example of network. Lanes help students and teachers to reach different parts of the classroom. Similarly, roads in city help us to 'reach' different parts of the city. City roads form a network to reach different parts of one city. When we need to travel from one city to another, we need to use HIghways. Highway network connects different cities in our country. The slide lists several ways in which highways are different from city roads.

11. Slide #11 shows a picture of car, taxi and lorry - all use the roads to reach from one place to another. It also has a simple road network which children can relate to with one of their boardgames or rugs. Ask them what is connected to form a road network - answer is roads. Point and show them different roads in the picture. Move on to next slide #12 which has a larger sized picture. You can ask children to observe the junctions of roads. Ask them if there are one or more paths to reach school in the picture from the hut/house on the top left side. Ask them to first spot the school and then identify a route or way to school from home in this example road network.
12. Slides #13 and 14. When you bring up the slide giving the example of Railways Network - ask children if they have travelled in a train. Show them figure of a train and ask them if they know about 'Thomas - the engine' cartoon. Ask names of friends of this engine (in case there are students who watch this show). sk children when they took a train journey - purpose - vacation - to reach relatives place - or any other. Ask them names of stations where they boarded /got off the train. Then gently introduce them to the concept of Railway network. Use the names of cities shared by children as part of their rail journeys to explain how the railway tracks connect different cities. Tell them that Railway network is made up of miles and miles of track that connects different places in India. Ask them if they can cross a water body (river, sea) using train? Answer yes, if there is a bridge or a tunnel long enough to span the sea or water body. Tell them that a railway network is made up of tracks. Move to Slide #13 which has a larger sized picture. Show them the figure with lots of railway tracks. Point at the building say the one near the crane on right hand side. Ask them how can someone from this building reach Thomas the engine (on the left hand corner below) - ask them to draw the path in their notebooks.
13. In Slide #15 we encourage the children to think about other examples of simple 'network' that they can relate to. In this case, we bring up a ladder. Tell them a ladder is also an example of a network. What is this network used for? It is used to reach somewhere we cannot normally reach. Say someplace higher above than our height. In this case - an apple tree. How do you pluck apples from a tree? Either you climb it like a monkey or if you cannot, then use a ladder. Ask children if they can identify what kind of 'things' are connected to make a ladder. Give them adjacent example of a staircase. Ask them what 'things' are connected to make a staircase. Remind them of Spider's web. The Web is a network and it is made up of silk like threads "things' connected together. Who uses the web and for what? Spider for its food. Similarly, a ladder is used by humans to reach or connect to an apple high up on a tree. A staircase is used by humans to reach from one floor of the building to another floor. Staircase helps humans to connect. Networks help to reach some place to get some thing such as food for spider, apple for us.
14. In the next slide, Slide #16, we briefly introduce the concept of Computer Networks. Tell them that two or more computers, printers, other computing devices can connect together to form a Computer network. Ask them what helps computer to connect? Answer: wires. Ask them if they have any wires coming out of their TV Remote. Explain to them that TV remotes are connected to TV wirelessly. Similarly computers can also connect wirelessly. Give them example of Mobiles which are connected to internet wirelessly by cellphone networks. Cellphone network is another example of a network but more on this in next class.
15. Slide #17 is a recap of important concepts learnt as part of Introduction to Networks. Ask some simple questions to children about what they learnt and tell them that in next class they will learn more about networks with exercises. There is a fun video explaining road crossing and traffic lights - show it to the kids if time permits.

Assessment :
Answer questions on the activity sheet

Information Broadcast : In the class Introduction to Networks, children learnt about some basic network concepts, examples and were introduced to the internet. Next they will do the assessment designed to gauge their learning and also some fun activities that make them think. Refer to the worksheet for the same.