Lesson-15: Artificial Intelligence

10 Periods (40 minutes each)

Learn Better (Main Coursebook), Stay Ahead (Workbook), Book of Holistic Teaching, Book of Project Ideas, CRM signs, Poster

Animation, Animated Activities, Concept Map, Dictionary, eBook, I Explain, Quiz, Slideshow, Test Generator

Affirming better — I am focused on creating a bright future ahead.

Curricular Goals and Objectives (NCF)

To enable the students:
- to understand the role and impact of AI in daily life and various industries.
- to identify and differentiate between AI technologies like humanoids, self-driving cars and smart speakers.
- to explore the benefits and limitations of AI in tasks compared to human abilities.
- to engage in discussions and projects related to AI, including building robots.
- to examine the ethical considerations and future implications of AI on society.

Methodology

Period 1

Teacher: Good morning, students. How are you all today?

SHOULD DO — 05 MIN.

Teacher: Before we dive into our lesson, let us take a moment to relax and focus our minds with a short meditation.

Teacher: Sit comfortably in your chair, with your back straight and feet flat on the ground. Close your eyes gently and take a deep breath through your nose. Hold it for a moment, then slowly breathe out through your mouth.

Let us do these three more times. Breathe in... and breathe out. As you breathe, imagine your mind becoming clear and ready to learn.

Open your eyes and smile at your friends. Let us start our lesson with positive energy.

Teacher: Before we start the class, let us all say together, 'I am focused on creating a bright future ahead.' Repeat after me: 'I am focused on creating a bright future ahead.'

MUST DO — 05 MIN.

Teacher: Alright. Today, we are going to begin a new chapter, 'Artificial Intelligence.' We use a KWL chart to help us organise our thoughts and learning. I have made a KWL format on the blackboard. Please take out your notebooks and draw the same format.

Teacher: Let us start by filling out the 'K' and 'W' columns. Take a few minutes to think and write. If you have any questions, feel free to ask.

K	W	L

Teacher: Before we start the chapter, we will do a quick Re-KAP, which involves revisiting our previous knowledge through creative activities using Kinaesthetic, Auditory and Pictorial methods to make our learning interactive and engaging.

Kinaesthetic

Re-KAP [SPD]

Kinaesthetic
Intelligence is our ability to learn new skills. Think of two new skills that you would like to learn. Act these out for your partner to guess. Then, ask your partner to do the same. (113)

Teacher: Today, we are going to start with a kinaesthetic activity. Ready?

MUST DO — 10 MIN.

Teacher: Intelligence is our ability to learn new skills. Think of two new skills you would like to learn. Then, act these out for your partner to guess. After that, ask your partner to do the same. This will help us understand how we can learn through actions and practice. Let us get started.

(Let the students complete the activity.)

Teacher: Excellent work everybody.

Auditory

Auditory*

Listen to your teacher carefully. Answer the questions. (113)

Teacher: Let us start the auditory activity. It is time to listen carefully. I will read something aloud to you.

MUST DO
10 MIN.

After that, you will answer a few questions. I want you to pay attention to every detail before answering. Are you ready?

Teacher: I am a little robot. Lucy is my name. Sometimes I get cranky and start coughing. But, do not worry. Flip the switch and turn me off. Artificial Intelligence (AI) is like a super-smart computer brain that helps people solve problems and make things easier.

1. What is the name of the little robot?

2. How can you turn off the robot?

(Waits for student responses.)

Teacher: Fantastic answers. You were all listening carefully. Now, let us try a pictorial activity.

Pictorial

Pictorial PS

Tick (✓) the pictures of devices in which artificial intelligence is being used.

(113)

Teacher: Now, let us look at the pictures given on page 113 of the Main Coursebook. You will see images of different devices. Your task is to tick the pictures that show where artificial intelligence is being used. Look closely at each one.

MUST DO
10 MIN.

(Let the students think and tick. Discuss the correct answer.)

Teacher: Very good. Your choices are thoughtful.

Differentiated Activities

110 km/hr

Explain in detail how AI is changing the way we live and work? How can AI help solve major problems in healthcare or education?

80 km/hr

Name one device that uses AI in your daily life? How does it make tasks easier for you?

40 km/hr

What is one example of a device that uses AI?

Home Task

Think of one way AI is used in the world today. Write a short paragraph about it and explain how it makes life easier for people.

Period 2

Interacting better

Interacting better ICL

Ask your partner to name any show or movie about robots that they have seen. Discuss the story. (114)

Teacher: Alright, students. Now, we are going to do an interactive activity. I want you to partner up with someone. You will ask your partner to name any show or movie about robots they have seen.
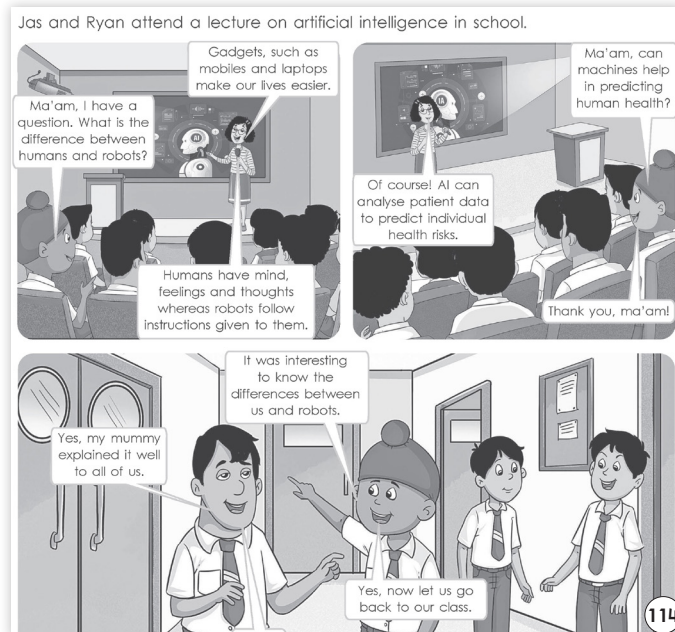
MUST DO
10 MIN.

Teacher: Once your partner names the show or movie, discuss the story with them. Talk about the robots, what they did and how they interacted with humans. Take a moment to share your thoughts and listen carefully to your partner's ideas.

Teacher: Ready? Let us start.

(Let the students discuss.)

(Use CRM signs to settle the class.)

Teacher: Wonderful. You all interacted very well.

Teacher: Everyone, open your books and look at the picture story given on page 114 of your Main Coursebook. Read it silently. Observe the expressions of the characters, the setting and what they are saying. (Let the students read the story.)

MUST DO
30 MIN.

Teacher: Now that you have finished reading, let us discuss. In the story, Jas asked the teacher to explain something. Does anyone remember what he wanted to know?

Teacher: That is right. Jas was curious about how humans are different from robots. The teacher explained that humans have minds, emotions and thoughts, while robots are designed to follow instructions. So, what do you think about the idea that robots do not have feelings or thoughts like humans do?

Teacher: Exactly. Robots can only do what they are programmed to do and they cannot think or feel on their own. Now, Ryan also had a question for the teacher after Jas asked his. Who can explain what Ryan was wondering about?

Teacher: Correct. Ryan was interested in whether machines, like AI, could help predict or understand health issues. The teacher explained that AI can look at lots of patient data and help doctors identify potential health risks. How do you think this could change the way doctors treat patients?

Teacher: Wonderful. AI is already being used to help doctors make better decisions and provide more accurate treatments. Imagine how this could help people around the world. Now, Let us move to the part after the lecture. How did Ryan and Jas feel about what they leant?

Teacher: Yes, Jas found it really interesting to understand how humans and robots are different. She also mentioned that her mummy had explained it to her earlier. Why do you think Jas was so excited about learning this?

Teacher: Exactly. It is fascinating to learn how robots work and how they are used in different areas of life. We often do not think about how much robots and AI are already a part of our world. What are some ways you think robots could help us more in the future?

Teacher: Great ideas. Robots are already helping in healthcare, transportation and even space exploration. The possibilities are endless, and we will likely see many more changes in the future.

Teacher: Now, Let us reflect on what we have leant so far. We have talked about robots and how AI is used in real-life situations, like healthcare. Can anyone think of a smart device at home that uses AI to help make your life easier?

Teacher: Wonderful. AI is already a part of our daily lives, whether it is through voice assistants, smart speakers or even self-driving cars. How do you think these technologies will evolve in the future?

Teacher: Excellent insights, everyone. AI and robots will continue to transform the way we live and work. We are just at the beginning of this exciting journey.

📖 You may show the **Dictionary** and **eBook** on the digital platform.

Differentiated Activities

110 km/hr

How do you think robots and AI will change the way people work in the future? What jobs might robots do, and what jobs do you think humans will still do?

80 km/hr

Can you think of one example of how AI helps us in our daily life? How does it make things easier for us?

40 km/hr

What is one thing a robot or AI device can do to help you? For example, something like a voice assistant or a smart speaker.

Home Task

Think about an AI device in your home, like a smart speaker or a robot. Write a few sentences about what it does and how it helps you.

Period 3

Teacher: Good morning, students. How are you all today?

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you will answer them. Ready?

SHOULD DO
05 MIN.

Teacher: What is one example of artificial intelligence? (Smart speakers like Alexa or Siri)

Teacher: How does AI make our lives easier? (It helps us with tasks like setting reminders or answering questions.)

Teacher: Can you name a smart device that uses AI to listen to your commands? (Smartphone or smart speakers)

Teacher: How do you think AI will change the world in the future? (It could help with self-driving cars or healthcare.)

Teacher: What is one benefit of using AI in education or healthcare? (AI can help personalise learning or assist doctors in diagnosing diseases.)

Teacher: Wonderful answers, everyone. Let us now begin today's class.

(The teacher will read the last two paragraphs of page 114 and the first two paragraphs of page 115 aloud and provide explanations to ensure that the students understand the content.)

We all have seen or used a mobile phone, laptop or desktop. These machines make our daily lives much easier. Let us now learn about artificial intelligence – what does it mean and how it will help us in the future. (114)

The ability to think and learn is called intelligence. When machines think, learn or act as humans, it is called Artificial Intelligence (AI). Human beings can use the **(114)**

emotions, values, imagination and understanding while making decisions. Artificial intelligence can understand and <u>analyse</u> large amounts of data, perform repetitive tasks and makes decisions. People write a set of instructions and codes that are used to run these machines. **(115)**

Teacher: Today, we will start by discussing Artificial Intelligence (AI). We all have seen or used mobile phones, laptops or desktops. Can anyone tell me how these machines help us in our daily lives?

MUST DO
10 MIN.

Teacher: Yes, exactly. They make tasks like communication, research, and entertainment easier. Now, Let us think about Artificial Intelligence. What do you think AI means?

Teacher: Correct. AI is when machines or computers are able to do things that usually need human intelligence, such as learning, thinking and problem-solving. So, how do you think AI might help us more in the future?

Teacher: Yes. AI might help us more in the future by improving transportation, such as through self-driving cars or by helping us make better decisions in areas like healthcare, where AI could provide quicker and more accurate diagnoses. It can also help in tasks like managing energy use, making cities smarter and more efficient.

AI is in use everywhere today, from smartphones to cars. It also helps in scientific research, space exploration, medical science, defence and various other evolving fields and industries. **(115)**

Teacher: Let us move on to how AI works. What do you think is the difference between human intelligence and machine intelligence?

MUST DO
15 MIN.

Teacher: Yes. Humans have minds, feelings and the ability to make decisions, while machines or robots, can only follow the instructions they are given. Can you think of any tasks where AI might be better than humans?

Teacher: Wonderful. AI can analyse large amounts of data and perform repetitive tasks. But can anyone think of a task where a human might still do better than a robot?

Teacher: Exactly. Humans have emotions and use their imagination and values to make decisions, which robots cannot do. AI works by following instructions and using patterns to make decisions. What do you think about machines making decisions based only on data? Do you think it is safe?

Teacher: Yes. While machines can process large amounts of data quickly and make decisions based on patterns, it is important to remember that AI doesn't have feelings or morals. This means it can sometimes make decisions that are technically correct, but not always the best for people. It is crucial that humans oversee AI decisions, especially in areas that affect people's lives, like healthcare or law enforcement, to ensure fairness and safety.

Teacher: Now, let us talk about where AI is used. Can anyone name

MUST DO
10 MIN.

a place or field where AI is being used today?

Teacher: Yes, AI is used everywhere today, from smartphones to self-driving cars. But it is also used in research, space exploration, medical science and defence. How do you think AI is helpful in space exploration?

Teacher: Right. AI helps analyse data collected from space and makes it easier for scientists to understand it. How about in healthcare? Can AI help doctors? How?

Teacher: Wonderful. AI can help doctors by analysing patient data, predicting health risks and even diagnosing diseases. Can anyone think of a new way AI might be used in the future?

Teacher: Yes. AI might be used in the future to help with climate change by analysing environmental data and suggesting ways to reduce pollution. It could also help in education by providing personalised learning experiences for students, allowing each one to learn at their own pace based on their needs and abilities.

You may show the **Animation** on the digital platform.

110 km/hr

How do you think AI could help solve global problems like climate change or hunger? Discuss how AI can be used in agriculture, renewable energy or waste management to improve sustainability.

80 km/hr

What are some examples of how AI is used in everyday technology, such as smartphones or smart speakers? How do these devices make tasks easier for us?

40 km/hr

Can you think of one job that AI might be able to do? What do you think AI could help with in the future?

Home Task

Write a few sentences about one way AI is already helping people in everyday life. Describe what it does and how it benefits us.

Period 4

Teacher: Good morning, students. How are you all today?

SHOULD DO
05 MIN.

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you will answer them. Ready?

Teacher: How does AI help us with everyday tasks? (AI helps by making devices like smartphones and smart speakers work smarter, such as setting reminders or playing music.)

Teacher: What is one way AI can be used in healthcare?

(AI can help doctors by analysing patient data and predicting health risks.)

Teacher: Can you think of an example where AI might be used in the future? (AI might help with self-driving cars or space exploration.)

Teacher: How do you think robots are different from humans in the way they make decisions? (Humans use emotions and judgement, while robots follow instructions and use data to make decisions.)

Teacher: Why is AI important for space exploration? (AI helps with analysing data from space missions and guiding robots to explore distant planets.)

Teacher: Wonderful answers, everyone. Let us now begin today's class.

(The teacher will read the third and the fourth paragraphs of page 115 aloud and provide explanations to ensure that the students understand the content.)

HUMANOIDS
Humanoids are robots that look and act like humans. They are the most exciting innovation of AI. Countries from all over the world have come up with different humanoid models. Some of the popular humanoids are Atlas, Asimo, Rashmi and Pepper.

(115)

Teacher: Today, we are going to learn about humanoids. Can anyone tell me what a humanoid is?

MUST DO
10 MIN.

Teacher: Yes. Humanoids are robots that are designed to look and act like humans. They are an exciting innovation in artificial intelligence.

Teacher: Now, can anyone name some popular humanoids?

Teacher: Excellent. Some of the popular humanoids are Atlas, Asimo, Rashmi and Pepper. These robots are used in various industries and can perform tasks that humans do, like walking, talking and even understanding commands.

Teacher: Now, let us think about how these humanoids can be useful in the future. How do you think humanoids could help us in our daily lives?

Teacher: Great ideas. Humanoids could be used to help in areas like healthcare, education and even in places where humans may find it difficult to work, such as in dangerous environments.

Poster

Teacher: Let us take a moment to look at the poster on the wall.

(Display and discuss the posters prominently in the classroom to reinforce learning about the evolution of robots. Encourage students to observe the posters and discuss the evolution of robots.)
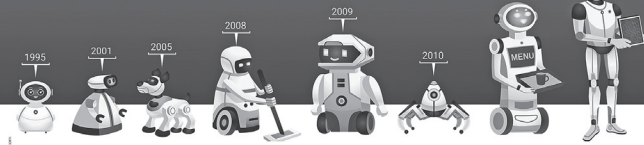
MUST DO
10 MIN.

Evolution of Robots — Science Theme 9: Why Do We Look Ahead?

1. Appearance: They have a body structure resembling humans, with arms, legs, and a head.
2. Movement: Some can walk, talk, and even make facial expressions.
3. Functions: They can help in industries, hospitals, and even homes by performing repetitive tasks.

1995 · 2001 · 2005 · 2008 · 2009 · 2010 · 2014 · 2022

ASIMO
A famous humanoid developed by Honda, known for its ability to walk and climb stairs. It looks like a small astronaut and stands about 4 feet tall. ASIMO's name stands for "Advanced Step in Innovative Mobility".

Sophia
Sophia is a famous robot created by Hanson Robotics. She looks like a human and can make facial expressions, talk. Sophia has advanced AI, which allows her to understand and respond to questions. She was even given citizenship in Saudi Arabia!

Teacher: Great observation, everyone.

FUTURISTIC SPACE TRAVEL — a humanoid
The arrival of the concept of space tourism has made big companies use AI to work towards making space travel cheaper and safer even for the common people.

Futuristic space travel involves physical exploration of space by human spaceflights or by robotic spacecrafts. There are also attempts to find new planets which can be used for human settlement.

futuristic space travel

Discovering better LAD
analyse: look over or inspect

(115)

Teacher: Now, let us talk about something exciting – futuristic space travel. This is how AI is being used to make space travel safer and more affordable.

MUST DO
15 MIN.

Teacher: The concept of space tourism has made big companies use AI to work towards making space travel cheaper and safer for everyone. Have you heard of space tourism? What do you think it means?

Teacher: Yes, space tourism means people going to space as tourists, just like we travel to different countries. AI is used to help space companies develop spacecraft and make space exploration more accessible.

Teacher: Now, let us talk about how space travel works. There are two types of space travel – physical exploration by humans, and robotic space missions. Can anyone tell me how robotic spacecraft help us explore space?

Teacher: Exactly. Robotic spacecraft, like the ones used by NASA, help us collect important data about planets and moons. These robots explore space when sending humans is not possible.

Teacher: Another important part of space exploration is finding new planets that could be used for human settlement. How do you think AI could help find new planets for humans to live on?

Teacher: Wonderful thoughts. AI helps scientists analyse data from space missions and identify planets that could potentially support life. AI is like the brain of the spaceship, helping it make decisions without human help.

110 km/hr

How do humanoids and AI-driven robots help in industries like healthcare and education? Discuss the advantages and challenges of using humanoids in these fields.

80 km/hr

Can you name a humanoid robot and explain how it can help in our daily lives? How do humanoids make tasks easier for humans?

40 km/hr

What is a humanoid? Can you name one humanoid robot you have heard of?

Home Task

Write a short paragraph on how AI is used in space exploration. Explain how robots or spacecrafts help in exploring new planets or moons.

Period 5

Teacher: Good morning, students. How are you all today?

SHOULD DO | 05 MIN.

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you will answer them. Ready?

Teacher: What is a humanoid robot? (A humanoid robot is a robot designed to look and act like a human.)

Teacher: How do humanoids look and act like humans? (They have features such as a head, arms and legs and they can walk and speak.)

Teacher: Can you name one example of how AI is used in space exploration? (AI is used in robotic spacecraft to collect data and explore distant planets.)

Teacher: What is space tourism? How does AI help in it? (Space tourism is when people travel to space for leisure. AI helps by making space travel safer and more efficient.)

Teacher: How does AI help robots in space exploration? (AI helps robots make decisions and navigate space, even without humans controlling them.)

Teacher: Wonderful answers, everyone. Let us now begin today's class.

(The teacher will read the last two paragraphs of page 115 aloud and provide explanations to ensure that the students understand the content.)

SELF-DRIVING CARS

A self-driving car is a vehicle that uses AI to sense its surroundings and move safely with little or no human input.

a self-driving car (115)

Teacher: Today, we are going to talk about self-driving cars. Can anyone tell me what a self-driving car is?

MUST DO | 05 MIN.

Teacher: Exactly. A self-driving car is a vehicle that uses AI to sense its surroundings and move safely with little or no human input. How do you think self-driving cars might help us in the future?

Teacher: Yes, self-driving cars can make travel safer and more efficient by removing human errors. What do you think are some challenges that might come with self-driving cars?

SMART SPEAKERS

A smart speaker is a voice-activated speaker that uses AI to perform everyday tasks. These devices typically connect to the internet via Wi-Fi. They can interact with users through natural language processing, enabling them to play music, answer questions, control smart home devices, provide weather updates, set alarms and reminders and much more.

For example, a virtual-assistant system and a voice-assistant.

a smart speaker (115)

Teacher: Now, let us talk about smart speakers. A smart speaker is a device that uses AI to perform everyday tasks. These devices are becoming more common in homes. Can anyone give me an example of a smart speaker?

MUST DO | 20 MIN.

Teacher: Yes. Some examples are Amazon Alexa, Google Home and Apple Siri. These devices can do many tasks, such as playing music, setting reminders, controlling other smart devices in your home and even answering questions. Why do you think these devices are useful?

Teacher: That is correct. Smart speakers make tasks easier by allowing us to do things just by speaking. For instance, if you want to turn on the lights, instead of getting up, you can simply ask, 'Hey Alexa, turn on the lights,' and it will do it for you. Can anyone think of another way a smart speaker makes life easier?

Teacher: Great ideas. In addition to controlling lights, they can give weather updates, tell the time, set alarms and much more. Think about this: if you wake up in the morning, you can simply ask, 'What is the weather like today?' and your smart speaker will answer. How do you think this is helpful?

Teacher: Yes, it saves time and makes it easier to get information. Now, how do you think AI helps smart speakers understand what we say?

Teacher: Smart speakers use a technology called natural language processing (NLP). This is a type of AI that allows machines to understand human language. Just like we understand each other when we speak, the smart speaker understands and processes the words you say. It then gives the correct response. Can anyone think of a time when this feature might be useful?

Teacher: That is right. It is useful when you are busy with something else and need information quickly. For example, if you are cooking, you can ask your smart speaker to set

a timer or give you the next step in your recipe. This way, you do not have to stop what you are doing.

Teacher: Now, think about the future. How do you think AI and smart speakers might improve in the next few years? Can you imagine any new features that could be added?

Teacher: Yes. Maybe smart speakers will understand more complex commands or even help with more tasks, like controlling home appliances or offering suggestions based on your mood. They might even help with education, like teaching new things or answering more complex questions.

Teacher: It is exciting to think about how smart speakers will evolve. They are already making life easier and as AI improves, they will become even more helpful.

Teacher: Let us think for a moment about the future impact of these technologies. Do you think having more AI at home will help us, or are there any concerns? What should we consider when using these devices?

Teacher: Wonderful ideas. It is clear that AI and smart speakers are already changing the way we live and they will continue to do so.

Understanding better

> Understanding better
>
> **Say yes or no.**
> 1. Humanoids are little humans.
> 2. Self-driving cars run with little or no human input.
>
> ICL
> (115)

Teacher: Now, let us check our understanding with some true or false questions. Listen carefully and think about the statements. Ready?

MUST DO · 10 MIN.

Teacher: First statement: 'Humanoids are little humans.' Is this true or false?

Teacher: Yes, that is false. Humanoids are robots designed to look and act like humans, but they are not little humans. They are machines.

Teacher: Second statement: 'Self-driving cars run with little or no human input.' Is this true or false?

Teacher: Yes, that is true. Self-driving cars use AI to drive with little or no human control, making them safer and more efficient.

You may show the **Concept Map**, **Slideshow** and **I Explain** on the digital platform.

Differentiated Activities

110 km/hr

Explain how AI can make self-driving cars safer and more efficient. What might be the challenges of using AI for transportation, and how can these challenges be solved?

80 km/hr

What are some features that smart speakers have, and how do they use AI to make tasks easier for us?

40 km/hr

What is a smart speaker? Can you name one thing it can do?

Home Task

Think about a smart device you use at home, like a smart speaker. Write a short paragraph describing what it does and how it helps you in your daily life.

Period 6

Teacher: Good morning, students. How are you all today?

SHOULD DO · 05 MIN.

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you will answer them. Ready?

Teacher: How does a self-driving car use AI to operate? (It uses AI to sense its surroundings and make driving decisions without human input.)

Teacher: Can you name one smart speaker? How does it make your life easier? (Examples include Amazon Alexa or Google Home. They help by answering questions and controlling devices like lights and music.)

Teacher: What is one benefit of using self-driving cars in the future? (They can reduce traffic accidents and make travel safer.)

Teacher: How do you think smart speakers will change in the next 10 years? (They will likely become even smarter and able to do more tasks, like controlling homes more efficiently.)

Teacher: Why is it important for AI to understand human language in devices like smart speakers? (It helps the devices respond correctly to our commands, making them easier to use.)

Teacher: Wonderful answers, everyone. Let us now begin today's class.

Connecting better

> Connecting better
>
> Social Studies
>
> After learning about technological advancement and artificial intelligence in school, Ryan asks his mother, "Mummy, I want to know by how much has the number of smart gadgets users increased in the past five years. Is there any simple way of doing so?" Mummy replies, "Yes, you can collect the yearly data from newspapers or the Internet* and then compare the data using bar graphs."
>
> HoLL
> (116)

Teacher: Let us look at the 'Connecting better' section. Read the paragraph between Ryan and his mother.

MUST DO · 10 MIN.

(Let the students read the paragraph)

Teacher: Ryan asked his mother how he could find out how the number of smart gadgets has increased in the past five years. What did his mother suggest?
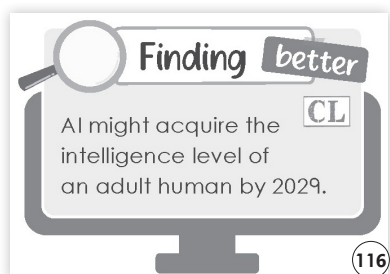
Teacher: Yes, she suggested collecting data from newspapers or the internet and comparing it using bar graphs. Why do you think bar graphs would be useful for this?

Teacher: Exactly. Bar graphs clearly show changes over time, making it easy to compare the data. What kind of data would you collect to compare smart gadget usage?

Teacher: Great ideas. By collecting data and using bar graphs, you could clearly see how the use of smart gadgets has increased over the years.
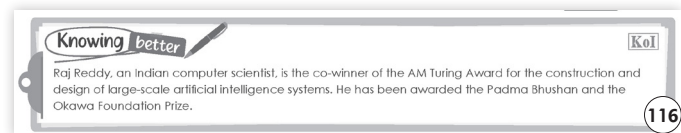
Finding better

Teacher: Now, let us move to the 'Finding better' section. There is an interesting prediction that AI might acquire the intelligence level of an adult human by 2029. What do you think this means for the future?

MUST DO 05 MIN.

Finding better

CL

AI might acquire the intelligence level of an adult human by 2029.

116

Teacher: Yes, it means that AI will become so advanced that it will be able to think, make decisions and solve problems like a human. How would you feel about AI having the same intelligence level as humans? Do you think it would be helpful or worrying?

Teacher: Wonderful thoughts. It is exciting but also raises questions about how we should use AI responsibly.
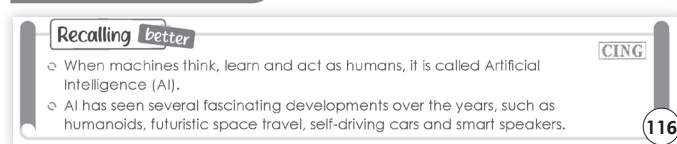
Knowing better

Knowing better

KoI

Raj Reddy, an Indian computer scientist, is the co-winner of the AM Turing Award for the construction and design of large-scale artificial intelligence systems. He has been awarded the Padma Bhushan and the Okawa Foundation Prize.

116

Teacher: Let us now move on to the 'Knowing better' section. Have you ever heard of Raj Reddy?

MUST DO 5 MIN.

Teacher: Raj Reddy is an Indian computer scientist who won the AM Turing Award for his work on large-scale AI systems. He has also received the Padma Bhushan and the Okawa Foundation Prize for his contributions to technology. What do you think these awards mean for people working on AI?

Teacher: Yes, they recognise the amazing work people like Raj Reddy are doing to advance AI. His contributions are important because they help shape the future of technology and make it better for everyone.

Recalling better

Recalling better

CING

o When machines think, learn and act as humans, it is called Artificial Intelligence (AI).
o AI has seen several fascinating developments over the years, such as humanoids, futuristic space travel, self-driving cars and smart speakers.

116

Teacher: Let us now recall what we have leant so far.

MUST DO 15 MIN.

Teacher: Alright, students. Let us now review what we have leant so far. I will ask some questions, and I would like you to answer them. Ready?

Teacher: What is AI and how does it work?

Teacher: That is correct. AI (Artificial Intelligence) is when machines can think, learn and act like humans. This allows them to perform tasks such as decision-making, learning from experience and problem-solving, which would typically need human intelligence. Great understanding.

Teacher: Can you name some of the developments we have seen in AI over the years?

Teacher: Excellent answers. Some of the exciting developments in AI include humanoids, futuristic space travel, self-driving cars and smart speakers. These innovations show how AI is becoming more integrated into our daily lives and in fields like healthcare, space exploration and transportation. You are all thinking critically about AI's impact.

Teacher: Wonderful. Now, why do you think these AI developments, like self-driving cars and humanoids, are important?

Teacher: Yes, these advancements are important because they help make tasks more efficient, reduce human error and even solve complex problems. For example, self-driving cars aim to make roads safer by reducing accidents caused by human mistakes. Humanoids can assist humans in dangerous or repetitive tasks. Amazing insights, everyone.

You may show the **Animated Activities** and **Quiz** on the digital platform.

Differentiated Activities

110 km/hr

How do you think AI will impact different industries like healthcare, space exploration and education? Discuss the positive and negative effects it may have on these areas.

80 km/hr

Can you name one example of AI in everyday life and explain how it makes tasks easier for us?

40 km/hr

What is AI? Can you give one example of a machine that uses AI?

236

Home Task

Write a short paragraph on how AI is used in one area of your daily life. Explain what it does and how it helps you.

Period 7

Teacher: Good morning, students. How are you all today?

SHOULD DO
05 MIN.

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you will answer them. Ready?

Teacher: What does AI help machines do? (It helps them think, learn and make decisions like humans.)

Teacher: Can you name a humanoid robot? (Asimo, Atlas, Pepper)

Teacher: How can AI be used in healthcare? (AI can help doctors by analysing patient data and predicting health risks.)

Teacher: What is space tourism, and how is AI involved in it? (Space tourism is when people travel to space for leisure, and AI helps make it safer and cheaper.)

Teacher: Why is Raj Reddy important for AI development? (He contributed to designing large-scale AI systems and was awarded prestigious prizes.)

Teacher: Wonderful answers, everyone. Let us now begin today's class.

Learning better

Learning better

CBA

(A) Tick (✓) the correct answer.

1. Artificial intelligence can understand and _____ data.
   a. displace   b. not share   c. analyse

2. _____ are robots that look and act like humans.
   a. Humanoids   b. Aeroplanes   c. Cars

3. _____ is an example of a humanoid.
   a. Man   b. Plants   c. Asimo

4. A _____ is a vehicle that uses AI to move safely with no human input.
   a. humanoid   b. smart speaker   c. self-driving car

5. A smart speaker is a _____ speaker that uses AI to do everyday tasks.
   a. natural   b. sleeping   c. voice-activated   (116)

Teacher: Everyone, please open page 116 of your Main Coursebook. In Exercise 'A' of 'Learning better' you have to tick the correct answer. Are you ready to get started?

MUST DO
10 MIN.

Teacher: Great. Let us begin with the first question. Artificial intelligence can understand and _____ data.

Teacher: The correct answer is analyse. Well done.

(Similarly, complete all five questions. And discuss the correct answers.)

(B) Write true or false.

1. AI helps in space exploration and scientific research. _____
2. Pepper is an example of a humanoid. _____
3. Futuristic space travel uses AI and makes space travel safer. _____ (116)
4. A smart speaker does not use AI to do everyday tasks. _____
5. Smart speakers that uses AI are typically connected to Internet via WiFi. _____ (117)

Teacher: In Exercise 'B' of 'Learning better', you have to write true or false. Are you ready to get started?

MUST DO
10 MIN.

Teacher: Great. Let us begin with the first statement. AI helps in space exploration and scientific research. Is it true or false?

Teacher: That is false. This statement is false because natural resources are substances that occur naturally in the environment, like water, soil and minerals and are not made by humans.

(Similarly, complete all five words. And discuss the correct answers.)

Teacher: Let us explore some short-answer questions. In Exercise 'C' of the 'Learning better' section, you have to write a short answer. Are you ready to get started?

MUST DO
15 MIN.

(C) Write short answers in your notebook.

1. What are self-driving cars?
2. Humanoids look and act like humans. However, both are different from each other. Explain how.
3. What is a smart speaker? (117)

Teacher: Great. Let us begin with the first question. What are self-driving cars?

(Students have to write the answers for the given questions in about 40 to 50 words in their notebook. Wait for the students to write the answers.)

(Similarly, complete all three questions and discuss the correct answer with the class.)

Differentiated Activities

110 km/hr

How do you think the integration of AI into everyday devices like smartphones, smart speakers and self-driving cars will affect our daily lives in the next 10 years? Discuss the potential challenges and benefits.

80 km/hr

What are some examples of AI in everyday life that you have seen or used? How do these devices help us make tasks easier?

40 km/hr

Can you name one device or robot that uses AI?

Think about a device or machine you use at home, like a smart speaker or smartphone. Write a short paragraph explaining what it does and how it helps you in your daily life.

Period 8

Teacher: Good morning, students. How are you all today?

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you will answer them. Ready?

Teacher: How can AI help doctors in diagnosing diseases faster? (AI can help by analysing patient data, detecting patterns and providing faster diagnosis.)

Teacher: What is one challenge that comes with using AI in self-driving cars? (One challenge is making sure the AI can handle all driving situations safely, including unusual or unexpected events.)

Teacher: Can you think of an example where robots or AI are used to explore places where humans cannot go? (AI is used in space exploration, such as on Mars rovers or deep-sea exploration, where humans cannot go.)

Teacher: How do you think AI might change the way we travel in the future? (AI could lead to more efficient and safer travel, like self-driving cars and smart traffic systems.)

Teacher: Why do you think it is important for AI to understand human language, especially in devices like smart speakers? (It is important so that the devices can respond correctly to our commands and make tasks easier for us.)

Teacher: Wonderful answers, everyone. Let us now begin today's class.

Learning better

D Write long answers in your notebook.
  1. What is artificial intelligence? Give some instances where AI is used.
  2. Write about the technologies that use AI.
  (117)

Teacher: Everyone, please open page 117 of your Main Coursebook. Let us explore some long-answer questions. In Exercise 'D' of the 'Learning better', you have to write a long answer.

Teacher: Let us begin with the first question. What is artificial intelligence? Give some instances where AI is used.

(Students have to write the answers for the given questions in about 100 to 150 words in their notebook. Wait for the students to write the answers.)

(Similarly, complete the second question and discuss the correct answer with the class.)

(Instruct the students to bring their Little Book in the next class.)

Thinking better

Thinking better
Think and write the answer in your notebook.
What are some tasks that artificial intelligence can do better than humans and what are some tasks that humans can do better than artificial intelligence? Why do you think this is the case?
2Ls CS HOTS (117)

Teacher: Let us begin with the 'Thinking better' section. I will ask you a question, and I want you to think deeply before writing your answer in your notebook.

Teacher: What are some tasks that AI can do better than humans, and what are some tasks that humans can do better than AI? Why do you think this is the case?

(Give the students time to think and write their answers in their notebooks.)

Teacher: AI is good at tasks like processing data quickly and performing repetitive tasks, such as analysing medical images or driving cars. However, humans are better at making decisions involving emotions and creativity, such as understanding feelings or adapting to new situations.

Differentiated Activities

110 km/hr

AI is being used in space exploration to collect data and explore distant planets. How do you think AI could assist in making space travel more affordable and accessible to the public in the future? Discuss potential challenges and benefits.

80 km/hr

How do humanoids and robots help us in different industries like healthcare, manufacturing and space exploration? Can you give examples of tasks they might do?

40 km/hr

What is a humanoid robot? Can you name one example of a humanoid robot you have heard of?

Home Task

Complete the 'Creating better' activity (Let us make a robot using cardboard.) given on page 117 of the Main Coursebook.

Period 9

Teacher: Good morning, students. How are you all today?

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you have to answer them. Ready?

Teacher: How can AI help in space exploration? (AI helps by collecting and analysing data from space, which is used to explore planets and moons.)

Teacher: What are humanoid robots, and how are they

different from regular robots? (Humanoid robots are robots that look and act like humans. They have features like arms, legs and a head, unlike regular robots.)

Teacher: Can you think of a situation where robots or AI could replace humans in dangerous works? (AI and robots can be used in jobs like exploring space or handling hazardous materials.)

Teacher: What do you think are the advantages of using AI in healthcare? (AI can help with quicker diagnoses, predicting health risks and assisting doctors with medical decisions.)

Teacher: How do you think AI will impact education in the next few years? (AI can help personalise learning, making lessons more tailored to individual students' needs.)

Teacher: Excellent answers. Let us move forward with today's lesson.

Choosing better

> **Choosing** *better* `LSV`
> Arav loves to play word puzzles on his mother's smartphone. His mother asks him to play outdoor games also. What value is she trying to teach him? Tick (✓) the correct answer.
> 1. Kindness ☐   2. Fitness ☐   (117)

Teacher: Today, we will start by discussing the story of Arav and his mother. Let us read the question and think about the value being taught here.

MUST DO
05 MIN.

Teacher: Arav loves to play word puzzles on his mother's smartphone, but his mother asks him to play outdoor games as well. What value do you think she is trying to teach him? Is it kindness or fitness?

Teacher: Yes, the correct answer is fitness. His mother wants him to stay active and healthy by playing outdoor games. Why do you think fitness is important, especially in today's world?

Teacher: Exactly. Outdoor games help us stay fit, improve our health and also make us feel energetic. So, remember to balance screen time with physical activity. Great thinking, everyone.

Revising better

> **Revising** *better* `DBL`
> If you made a humanoid, how would it look? Write in your Little Book.   (117)

Teacher: Now, let us move on to the 'Revising better' section. In this part, I want you to imagine that you are creating a humanoid robot.

MUST DO
10 MIN.

Teacher: If you made a humanoid, how would it look? Think about its features. Would it have arms, legs and a head? Would it have a face that shows emotions or would it look more like a machine?

Teacher: You can draw it, describe it or both in your Little Book. Take a few minutes to think about it and draw or write how you would design your own humanoid.

Teacher: Wonderful. I am excited to see your ideas. Humanoids can look very different depending on what tasks they are designed to perform. Some might look like humans, while others might be more robot-like. Great creativity, everyone.

Pledging better

> **Pledging** *better*
> In my own little way, I pledge to explore new ideas for using AI to create things that can help my community.   `SDGs`
> *SDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE* (117)

Teacher: Let us now take a pledge together. Please repeat after me: 'With my whole heart, I pledge to explore new ideas for using AI to create things that can help my community.'

MUST DO
05 MIN.

Teacher: This pledge is a reminder that by using AI in new ways, we can help solve problems and make life better for everyone. By focusing on SDG 9 - Industry, Innovation and Infrastructure, we are also committing to finding new, creative solutions for the future. Just like how AI is helping in various fields, we can use it to benefit our communities.

Teacher: Let us carry this pledge with us, not only in school but also at home and wherever we go. Keep thinking about how you can contribute to innovation and make a positive impact on the world.

Book of Holistic Teaching

> **Theme 9: Why Do We Look Ahead?**
>
> **Chapter 15: Artificial Intelligence**
>
> (A) **English**   `HoLL` `MDA`
>
> **Fill in the blanks with the correct *ture* ending word.**
>
> 1. Artificial intelligence will lead to a bright _____ (future/structure) for the future generations.
>
> 2. The unique _____ (feature/texture) of artificial intelligence is to understand and analyse data.
>
> (B) **Maths**
>
> How does AI aid in data handling? The given table shows the number of books issued by a school library in the month of January 2024. Draw a bar graph using the given information, in your notebook. Write the answer in your notebook.
>
> | Subject | Number of books issued |
> |---|---|
> | English | 80 |
> | Maths | 65 |
> | Science | 45 |
> | Social Studies | 40 |
> | Computer Science | 45 |
>
> (C) **Social Studies**
>
> How does AI help in communication? Write how does mobile phones have developed with the help of technology. Write the answer in your notebook.   (28)

Refer to the Book of Holistic Teaching, page number 28 under the title 'Artificial Intelligence' Complete the activities mentioned in this section and ensure that the students complete them. These activities are designed to enhance their holistic understanding and engagement with the topic. Provide any necessary support and materials to help the students successfully finish the activities.

(Instruct students to bring their workbooks to their next class.)

Differentiated Activities

110 km/hr

How do you think AI could help solve global challenges like climate change or poverty? What steps can we take to ensure AI is used ethically for such causes?

80 km/hr

What are some benefits of humanoid robots in industries such as healthcare and space exploration? Can you think of a specific task that humanoids can help with?

40 km/hr

What is AI? Can you name one device that uses AI to make our lives easier? (Smartphones, smart speakers, etc.)

Home Task

The Project Idea, given in the book of Project Ideas, page 19 under the title 'Artificial Intelligence.' This project should be assigned to the students as a home task to work on. Ensure that the students understand the project requirements and provide any necessary guidance or materials they might need.

Period 10

Teacher: Good morning, students. How are you all today?

Teacher: Great. Let us begin today's lesson with a quick game. I will ask some questions, and you have to answer them. Ready?

Teacher: How do you think humanoid robots might help us in the future? (Humanoid robots can assist in tasks that require human-like interaction, such as caregiving, teaching or even working in hazardous environments.)

Teacher: Can you give an example of how AI could be used in the healthcare industry? (AI can help by analysing patient data, diagnosing diseases faster and predicting potential health risks.)

Teacher: How does AI in self-driving cars work to keep us safe? (AI uses sensors, cameras and algorithms to detect obstacles, navigate the environment and make driving decisions, ensuring safety.)

Teacher: What are the benefits of using AI in space exploration? (AI helps in processing large amounts of data, controlling robotic spacecraft and making decisions during space missions, which are far beyond human capabilities.)

Teacher: What is space tourism, and how do you think AI will be involved in it in the future? (Space tourism allows people to travel into space for leisure, and AI can be used to control spacecraft, ensure safety and assist with navigation.)

Teacher: Excellent answers. Let us move forward with today's lesson.

Worksheet 1

Theme 9: Why Do We Look Ahead?

15. Artificial Intelligence

Worksheet 1

A. Fill in the blanks.

1. _____ can understand and analyse large amounts of data.

2. Humanoids are _____ that look and act like humans.

3. Artificial intelligence can help scientific research and _____ exploration.

4. Atlas and Rashmi are examples of _____.

5. Space tourism uses AI to make space travel _____ and safer.

B. Write true or false.

1. Artificial intelligence cannot understand any kind of data. _____

2. Artificial intelligence is able to perform repetitive tasks. _____

3. Artificial intelligence gets tired easily and needs proper rest. _____

4. Artificial intelligence is used everywhere today, from smart phones to cars. _____

5. Artificial intelligence also helps in scientific research and improving gaming experiences. _____

C. Match the columns.

Column A	Column B
1. artificial intelligence	a. human-like robots
2. humanoid	b. a vehicle that uses AI to sense surroundings
3. Pepper	c. space exploration by robotic spacecrafts
4. futuristic space travel	d. understands and analyses data
5. self-driving car	e. example of humanoid

52

Teacher: Let us do some activities from the workbook. Everybody, please open page 52 of your workbook and answer the questions given in worksheet 1.

(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

Worksheet 2

A. Fill in the blanks.

1. Asimo is an example of _____.

2. _____ involves the exploration of the space by human spaceflights.

3. A _____ is a vehicle that uses AI to sense its surroundings and move safely.

4. A smart speaker is a _____ speaker that uses AI to do everyday tasks.

5. _____ is a virtual-assistant system that is developed by an E-commerce company.

B. Rearrange the letters to make meaningful words related to artificial intelligence.

1. TADA _____

2. TIFICSCIEN SEARCHRE _____

3. ACESP RATIONEXPLO _____

4. MINGGA _____

5. LOGYTECHNO _____

C. Write true or false.

1. Humanoids are robots that look and act like humans. _____

2. Futuristic space travel involves space exploration using human beings. _____

3. A self-driving car is a vehicle that runs on petrol and diesel. _____

4. Self-driving cars require no or little human input. _____

5. Rashmi is an example of a self-driving car. _____

(53)

Teacher: Let us do some activities from the worksheet 2. Everybody, please open page 53 of your workbook and answer the questions given in worksheet 2.

MUST DO
10 MIN.

(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

You may generate additional practice worksheets using the **Test Generator** given on the digital platform.

Book of Project Ideas

Chapter 15: Artificial Intelligence

Theme 9: Why Do We Look Ahead?

With the help of Internet* make a poster on AI. CT PRO 21st CS

- Search for different 4–5 devices that uses AI.
- Draw or paste pictures of the devices and write 2–3 lines below each device depicting the benefit of AI in that particular device.
- Colour the devices, if required.
- Make the poster more attractive by using coloured pens for writing.

(19)

Discuss the project assigned as the home task in the ninth Period, focusing on helping students understand the objectives and addressing any challenges they face.

COULD DO
10 MIN.

Teacher: Now, let us complete the 'KWL' activity.

SHOULD DO
05 MIN.

Teacher: Take out your notebook and fill in the last column. Write what you have leant in this chapter.

(Wait for students to fill in the chart.)

Teacher: Let us all give a huge round of applause to everyone for their hard work and creativity. Great work, everyone. See you in the next class. Have a wonderful day ahead.

Differentiated Activities

110 km/hr

AI is helping in various fields like healthcare, space exploration and robotics. How do you think AI could change the future of work? Discuss the potential advantages and challenges.

80 km/hr

We have seen how AI is used in self-driving cars, smart speakers and humanoids. How do you think these devices could change the way we live in the future? Can you think of any potential problems with AI devices becoming more common?

40 km/hr

What is one way AI can make your life easier? Can you think of any devices or machines you use that have AI in them?

Home Task

Think about a smart device, like a smart speaker or self-driving car, that you have leant about today. Write a paragraph about how it works and why it is important in our daily lives. How do you think this device will help you in the future?

Learning Outcomes

The students will:

Domain	Learning Outcome
Physical Development	• demonstrate an understanding of how AI can be used in daily life, like using AI-enabled devices for fitness tracking and how AI technologies can promote an active and healthy lifestyle.
Socio-Emotional and Ethical Development	• understand the importance of using AI ethically in decision-making, particularly in areas such as healthcare and autonomous vehicles and will discuss the role of humans in ensuring that AI benefits everyone equally.
Cognitive Development	• identify and explain how AI is used in various fields such as space exploration, healthcare, and robotics and will differentiate between human abilities and AI capabilities, including learning and decision-making.
Language and Literacy Development	• describe AI technologies such as humanoid robots and smart speakers using precise and clear vocabulary and will improve their ability to explain technological concepts and their applications in different contexts through discussions and written tasks.
Aesthetic and Cultural Development	• appreciate how AI is transforming industries and shaping culture, and will explore how AI influences creative work, such as in art and music and how it contributes to the development of futuristic technologies.
Positive Learning Habits	• be encouraged to develop a mindset of curiosity and responsible learning by exploring AI concepts and applications, and will build habits of sharing their ideas, collaborating on tasks and applying their knowledge of AI to solve real-world problems.

Starry Knights

Do you think AI will replace teachers in the near future or be of great use in lessening a teacher's burden?

_____

Give yourself a STAR.