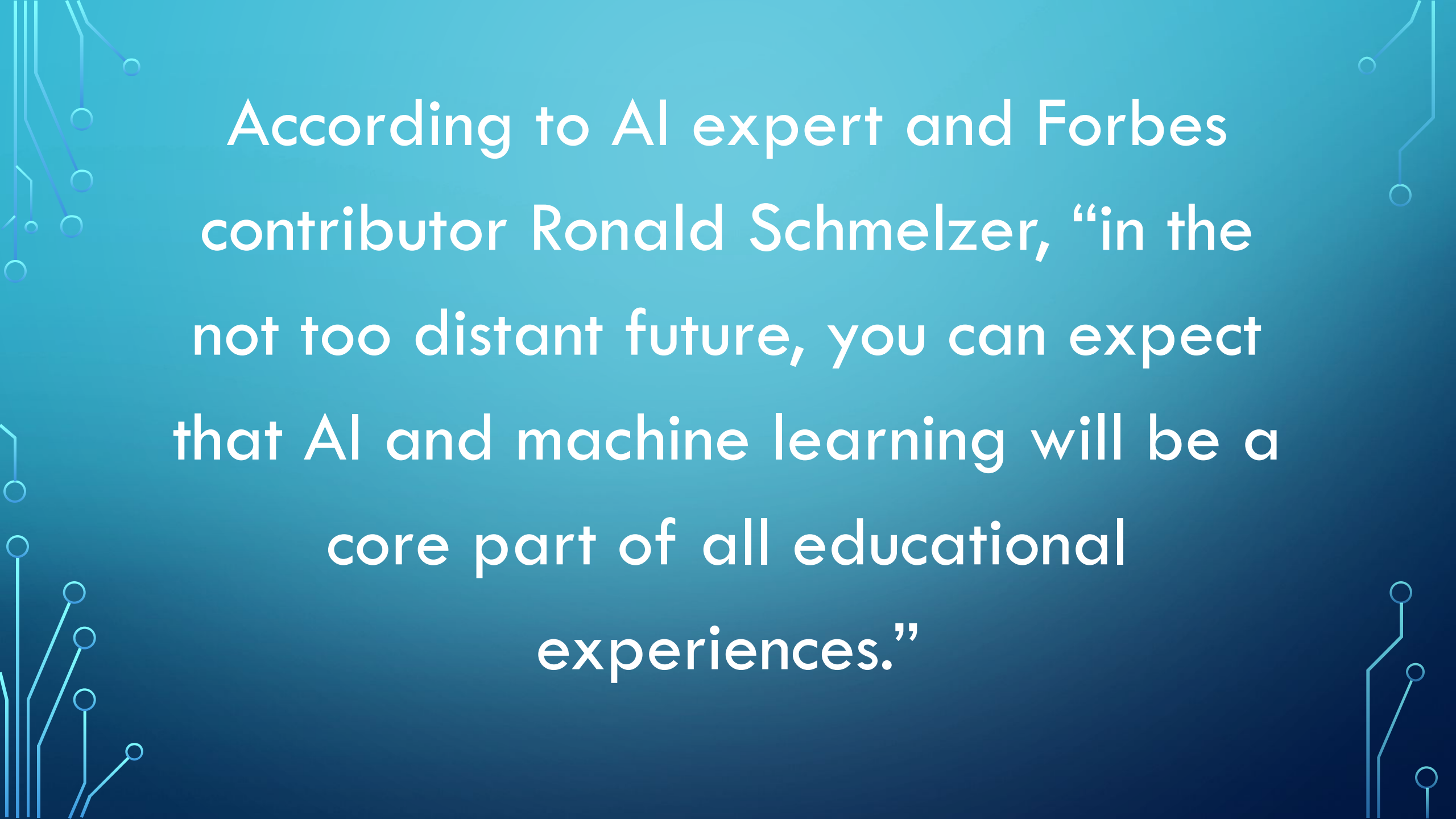# AI BASICS FOR K-12

# WHY PTAA? WHY AI?

Shubham Pandey, Superintendent:

Artificial Intelligence (AI) is no longer a distant concept confined to science fiction or high-tech labs. It has permeated every aspect of our lives, from healthcare to finance, transportation, and most pertinently, education. As stewards of the next generation's learning, it is imperative for us – principals, educators, and parents – to understand the transformative potential of AI in shaping the educational landscape. We invite our students to learn about the implications of AI, both in the present context and what's on the horizon.

# WHAT IS A.I.?



- AI or **Artificial Intelligence** may instantly call to mind images of science fiction, but the subject holds increasing prevalence and impact in our daily life. We are here to help demystify the topic and to discuss its meaning and applications!

- AI can be simply understood as the ability of computers and machines to perform tasks that typically require human intelligence, such as perception, learning, problem-solving, and decision-making. Using large amounts of data input, AI algorithms are continuously trained to identify patterns, make predictions, and recommend actions.

- Remember the last time you interacted with an online customer support chatbot, gave Alexa a prompt, or when Netflix recommended what to watch next? Little did you know, that is all AI in the working!

According to AI expert and Forbes contributor Ronald Schmelzer, "in the not too distant future, you can expect that AI and machine learning will be a core part of all educational experiences."

- According to **UNICEF**, AI's greatest impact will most likely be on children. On one hand, as is the case with other in-demand tech skills like **data science**, there is a pragmatic reason for learning. In a rapidly transforming and tech-driven world, equipping kids with AI knowledge and skills will help ensure their employability and career potential in the future.

- On the other hand, teaching AI to youngsters is also critical because, even without knowing it, it is already a constant presence in their day-to-day. From video games to the virtual assistants with which kids interact at home, they are frequently exposed to AI-powered technologies and devices. This can impact children's fundamental understanding of what intelligence is. Teaching AI – its principles, applications, and even limitations – at an early age is a great way to kickstart critical thinking, preparing kids to become smart consumers of technology.

# A CURSORY GLANCE OF THE TOPICS

Introduction to AI

Basics of Programming

Understanding Algorithms

Introduction to Robotics

Natural Language Processing (NLP)

Ethics in AI

Building Simple AI Models

AI Use Across Different Industries (Healthcare, Transportation, Entertainment, etc)

Data and Privacy

Machine Learning Basics

AI and Environment

Future of AI

Introduction to Deep Learning

Reinforcement Learning

Introduction to Computer Vision

# ETHICS

We understand that ethics are of paramount concern when discussing the creation of and interaction with AI.
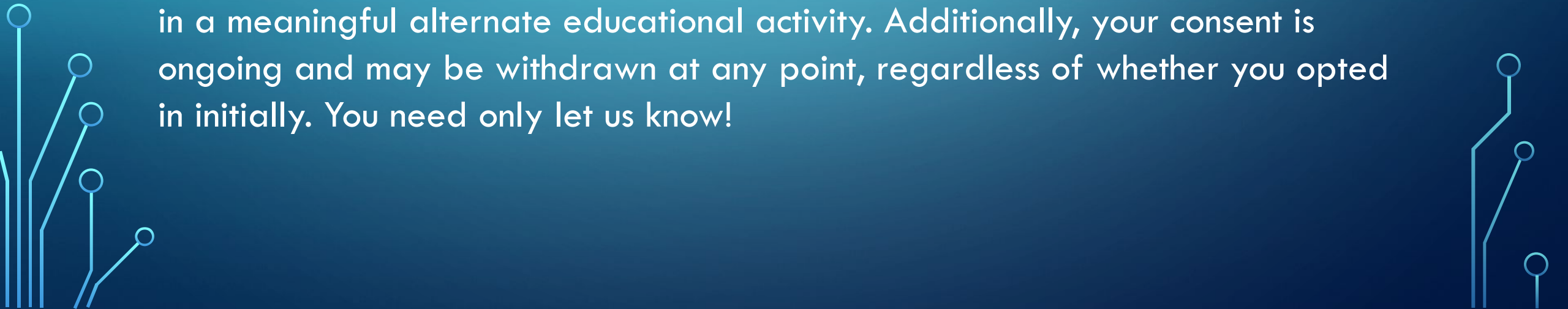
As AI becomes an increasing presence in our lives, it is important to discuss the ethics involved with using this powerful tool and how to use it in a way that is not harmful to self or others. These discussions will be integral to learning about AI.

# WILL I BE ABLE TO OPT MY CHILD OUT OF THIS?

## YES!

PTAA is going to great lengths to ensure that the curriculum will be taught from a factual, unbiased standpoint and that the lessons are age and developmentally appropriate. However, if you do not feel that these learning modules are the right choice for your child(ren), you may absolutely choose to opt them out. Permission slips will be sent home and your child will be engaged in a meaningful alternate educational activity. Additionally, your consent is ongoing and may be withdrawn at any point, regardless of whether you opted in initially. You need only let us know!

# WILL I KNOW THE CURRICULUM OVERVIEW PRIOR TO IT BEING TAUGHT?

YES! Every month, we will send a newsletter out with an overview of the topics being discussed in the upcoming weeks. Example on next slide:

# AI LEARNING IN THE CLASSROOM

## WHY LEARN AI?

AI literacy is an essential skill for the future

AI education fosters critical thinking skills

AI is already being used in many industries



## UPCOMING TOPICS

**Week 1: Introduction to Artificial Intelligence**
- What is AI?
- History and development of AI
- Applications of AI

**Week 2: Introduction to Machine Learning**
- What is machine learning?
- Supervised, unsupervised, & reinforcement learning
- Applications of machine learning

Introducing children to AI, its complexity, and potential risks and rewards can empower them to comprehend and steer this incredible technology as it evolves rapidly. This early exposure will prepare them to better understand and manage AI in their lifetime.

# WHO WILL BE TEACHING THIS?

Classroom Teachers (K-4th)

STEAM Teachers (K-8)

Specials Teachers may utilitilize for projects

# HOW OFTEN AND FOR HOW LONG WILL THIS BE TAUGHT?

All grade levels will spend, on average, 35-60 minutes a week with these modules. This will be ongoing throughout the entirety of the school year.