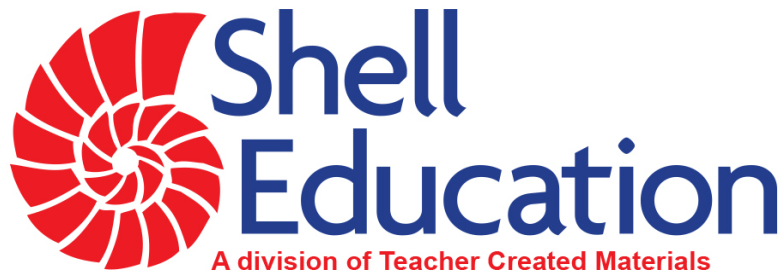


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STRATEGIES

FOR INTEGRATING

A I
INTO THE CLASSROOM

Donnie Piercey

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I've been a classroom teacher in Kentucky since 2007. The technology in my first classroom included a whiteboard and an overhead projector that I struggled to use every day. A decade and a half later, technology has changed so much that I now must include this assurance in the opening paragraph of my book: Artificial intelligence (AI) did not write this. It was written by a human: me, Donnie Piercey. I promise.

If you're brand-new to AI tools, no worries! I've designed the strategies in this book for both experts and beginners to read, play with, tweak, and teach.

As you explore the various AI tools and ideas presented in this book, please remember that every class and student is unique. And as incredible as artificial intelligence has become, it hasn't changed these three essential truths about teaching:

Good pedagogy is still important.

Developing positive relationships with students still matters.

Read-alouds (with paper books!) are still cool.

Meeting the Newest New Thing in Education

I've found that most educators have some variation of this experience when they see AI in action for the first time:

1. Teacher copies and pastes essay question to see what AI creates.
2. AI answers said essay question.
3. Teacher deems it a B- essay at best.
4. Teacher asks AI to turn the essay response into a sea shanty sung in a minor key with the accompanying chords.
5. AI does it in seconds.
6. Teacher spits out coffee.

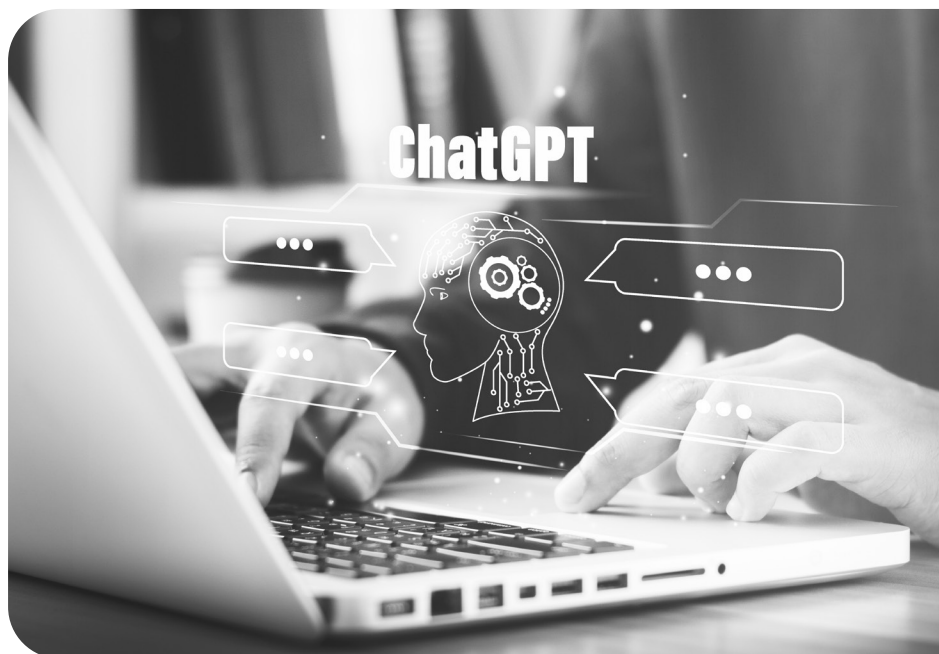
When I started experimenting with AI, I had an experience similar to the first time I used Google Search or YouTube. I thought, "Wait, what *else* can this thing do? I need to figure this out, because things are going to change in the classroom, and in a hurry." And I believe there's a strong chance that fifty years from now a teacher will pick up this book and chuckle at some of the ways we *thought* AI was going to affect the classroom.

If you're thinking that artificial intelligence is some scary future thing, you can take a deep breath and relax. There's no need to dread its arrival. It's already here, and it's only going to get better. For the students walking through the doors of your classroom today, the AI they'll encounter is the most nonhumanlike AI they'll ever experience (de la Higuera 2019).

If you remember America Online (AOL) or Netscape Navigator from the 1990s, the champions of the early internet, you know what I mean. Apps like ChatGPT are groundbreaking, but they're the Netscape Navigator of AI. We're just getting started (Dwivedi et al. 2023). AI apps are evolving faster than a middle schooler's mood, so expect new and improved tools to keep popping up as classroom teachers figure out creative ways to use these tools with their students.

I realize this may be a little terrifying. Let's address the robot in the room. You know, the whole "Bots are going to take over the world" worry. Sure, we might joke about our future robot overlords, but the truth is: AI offers more ways to help than to hinder classroom instruction (Gillani 2023). You can rest easy knowing that your job is safe from the clutches of a fleet of TeacherBots. For now.

Now let's talk about the elephant in the room (it's a big room—full of robots and elephants): student academic integrity. You might think that introducing AI to a classroom is just asking for trouble, like handing over the answers to a test. But I believe that a student's first instinct *isn't* to cheat. Kids are naturally curious, and



AI can be a powerful tool to ignite their spark of curiosity and guide them toward meaningful learning experiences.

My goal in this book is to show you how to use AI responsibly, keeping the focus on learning, student creativity, and engagement. I'm hoping it will make your teaching life easier—that you'll be able to pick it up and dive into some classroom activities with your students today (especially if you happen to be reading this during your 45-minute planning block or 22.5-minute lunch).

The book covers all sorts of AI, from virtual tutors and grading assistants to personalized learning plans and interactive simulations. It does not focus on specific apps. You can use whatever apps you like, including the ones no one knows about yet.

The practical tips and real-world examples in this book can help you get the most out of using AI in your classroom. Whether you're a tech-savvy educator or a newbie to the digital realm, I've got you covered.

So, grab your coffee (which will one day be brewed by a robot butler) and get ready to ride into the wild world of AI. Remember: the future is bright, the bots are (mostly) friendly, and we're all in this together.



Questions to Consider Before Using AI in the Classroom

As AI continues to advance, it will offer numerous opportunities to make the classroom and learning experience more engaging, efficient, and personalized. To harness the full potential of AI in the classroom, you'll need to plan for and use AI-powered tools and resources that cater to your students' diverse needs. Here are some important questions to consider as you bring AI into your classroom:

- What are the learning targets, goals, or objectives for this lesson, and how can AI tools help me achieve them?
- What prior knowledge do my students have, and how can AI help me identify and fill any learning gaps?
- How can AI save me time on tedious tasks so I can spend more time helping my students succeed?
- How can I use AI tools to offer personalized feedback and guidance for each student?
- When should students be guided by AI during practice exercises to ensure understanding?
- How can AI-powered apps assist me in teaching and reinforcing new content-specific vocabulary?
- In what ways can I use AI to help formatively assess student learning?
- How can AI tools help me model complex concepts and processes for students?
- How can AI help me monitor student progress and determine when learning objectives are met?
- What AI-driven interventions or resources can I provide for students who need additional support?
- How can I use AI for collaborative learning and peer-to-peer interactions?

The answers to the above questions may change depending on the day and the activity. Some of these questions may never have perfect answers for you, but asking them will help you focus your intentions and lesson planning on what you know is most important.

What Role Does Creativity Play?

AI tools can provide a personalized learning experience tailored to individual students' needs, but it is ultimately up to the students to explore, experiment, and innovate with these resources. By encouraging creativity, you can empower your students to think critically and create unique solutions to problems, which can lead to a deeper understanding of content. This creative mindset will serve them well as they move from school to adulthood, where AI will continue to play a role in many fields.

Yeah, but Can't They Just Use This to Cheat?

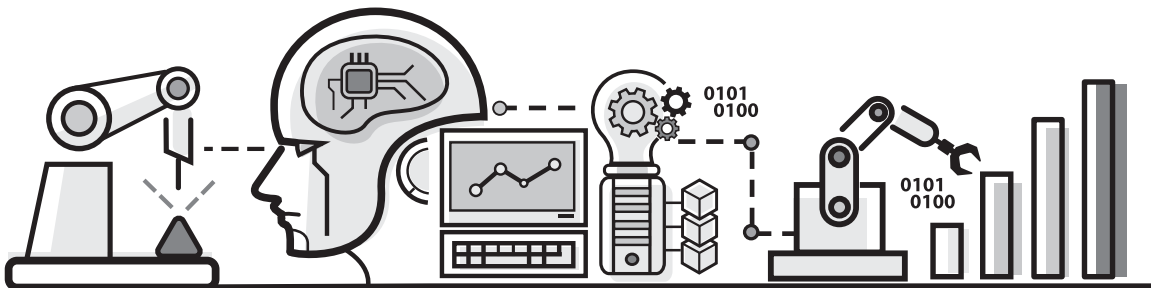
As AI technologies become more pervasive in schools, the need to have discussions with students about what role AI *should* play is growing. You'll want to teach students the importance of honesty, accountability, and respect in using AI tools. Students must understand the consequences of actions such as using an app like ChatGPT or Bard to do their homework for them. There's still value in the students' productive struggle.

AI Is a Tool for Learning, Not a Replacement for It

As a teacher, it's your responsibility to learn how to use AI so you can pass on this knowledge to your students. By familiarizing yourself with AI technologies, you can use them to create meaningful, engaging, and interactive learning experiences. Additionally, you must serve as a role model by demonstrating the ethical use of AI and promoting the values of creativity and integrity in how *you* use it.

In an AI-driven world, it is crucial to give students opportunities for hands-on experience and guidance. This includes incorporating AI-powered applications in lessons, encouraging collaboration on AI-related projects, and having deep discussions on the ethical implications of AI. By exposing students to the real-world uses of AI and allowing them to experiment with these tools, you can help them develop the skills and mindset they need to succeed in whatever robot-overlord-driven world they end up graduating into.

Though AI is an important tool, I don't think this means that kindergarteners need to be introduced to it on the first day of school. As much as I love technology, there's still so much value in having students read a good book and do other unplugged learning. No matter when or how much you use AI in our classrooms, you need to do so thoughtfully. Researchers at MIT are finding that the most productive AI education uses are rooted in three design principles: Active Learning, Embedded Ethics, and Low Barriers to Access (Williams et al. 2022).



How to Use This Resource

On each strategy page, you'll find an idea accompanied by prompt suggestions that you can enter into whatever AI app you're using. You can use the prompts exactly as they are or modify them to suit your students' unique needs. Almost all the strategies in this book can be expanded or adapted to fit many grade levels and topics.

Sample prompts give you examples of what to type into AI to get started.

AI IN THE CLASSROOM | Teacher Time-Savers

Emergency Sub Plans

Every teacher has been there: a family emergency pops up, you get called into a meeting you didn't expect, or you just need to take some time for yourself. The good news is that AI can create on-the-fly lesson plans and ideas when you have little preparation time. By entering details about what you're teaching, your schedule, and other key information, you can have workable sub plans in a fraction of the time. You can email or share the results of the sample prompt here in minutes. (Remember, a bit of editing might be needed.)

🔍 Sample Prompt

I am a fifth grade teacher who needs sub plans for today. I will not be able to go to school or print anything. I don't have worksheets or anything else prepared. Please come up with a couple of activities for math, reading, writing, and social studies. Here is my schedule: (insert schedule).

Make It Real

Grades PK-1

- Have several of these sub plans at the ready. It takes only a couple of seconds for AI to throw one together.
- AI can generate lists of high-frequency words or words with similar sounds or phonetic patterns. *(Give me fifty first grade spelling words that have an a with a magical e.)*
- Have AI generate prompts for a scene or creative play scenario for your substitute to give students.

Grades 2-5

- If you work with a team at your school, copy and paste your sub plans into an editable document and ask your team to make some quick revisions for you.
- If the sub plans include activities that say, "Give examples to the class of these types of problems," add a follow-up prompt asking AI to create some example problems for the sub to share.

Grades 6-12

- Middle or high school students often have more autonomy on days when a sub is in the classroom. AI is a great way to create a quick list of activities for your students to complete.
- If your students are ready to use AI themselves, give them a prompt that will create an activity or generate questions for them to complete.

These notes offer ideas to try next, discussion questions, or fun experiments.

Play with AI

I guarantee that the activities won't be perfect the first time! This is just a quick way to generate some ideas for your students. You can tweak them any way you like.

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50 Strategies for Integrating AI into the Classroom—140172

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I Need Exemplars

Students often do better on an assignment when you can provide examples of a successful effort. But for some projects, sharing student examples from past years doesn't work for privacy reasons. For those situations, for first-time projects, or when you've accidentally deleted years of files (oops), AI can come to the rescue with new and anonymous examples.



Sample Prompt



Read this essay question and give me some high-quality, grade-level responses that I can share with my students: (copy and paste question here).

Make It Real

Grades 2–5

- Create three levels of the same writing, showing a great, a good, and a needs-more-work example to illustrate the writing skills students will work on.
- Including the phrase “but write it like a second grader” will help make the piece sound a little more realistic.
- Ask AI to include common errors that a second grader would make.

Grades 6–8

- Write an example in real time with the class. Have students look in the writing for elements and structure they will need to replicate, as well as those to avoid.
- Use AI to generate an essay on a topic and have students work in small groups on improving the essay to create exemplars.

Grades 9–12

- Practice peer editing using non-peer-written examples so that no student's work is singled out.
- To help students who are struggling with an essay, AI can take their topic and thoughts and create an outline with starter sentences and show them examples of how it could look (using a completely different topic for examples).



Play with AI

What kind of writing assignment can you come up with that AI can't do well? How can you shape the use of AI as a writing tool rather than a writing replacement?



Math Manipulatives

Sometimes you need some math manipulatives for a lesson, especially when you're trying to teach a lesson on theoretical probability. But what if you don't have enough to share, want to switch things up, or want to make stations where students explore different kinds of real-world number examples?



Sample Prompt



What are eight random cards from a standard deck of fifty-two?

Make It Real

Grades PK-1

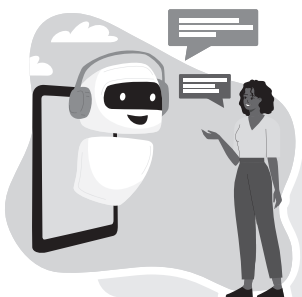
- Use AI image generators (page 9) to create counting, adding, and subtracting visuals specifically designed for your students.
- Send home links to access the AI you use in class and prompts that work well so that students can practice at home with their grown-ups.

Grades 2-5

- Set up AI stations on devices around the room, each offering a different kind of manipulative that students need to gather data from.
- Give students a coin to flip twenty times and track the results, then do the same with an AI "coin" and compare.

Grades 6-12

- Students can use AI to help create probability models for a complex system, then "run" a simulation. For example, they could tell it to guess sports performance based on previous stats or the likelihood of making it through an imaged obstacle course.
- Have AI make a template for a vacation budget to a few places suggested by students, then have them do their own for a vacation they want to take.



Play with AI

Using AI tools, can your students invent a game? What happens when you create your own manipulatives that break the laws of physics or reality?



Play with Language

Whether it's idioms, secret passwords, or replacing one of those phrases your students are saying that you just can't take hearing one more time, AI is great at randomly generating phrases that are both unique and believable. Sharing language that is unique to your group is also a great way to build community and belonging.



Sample Prompt



I am a tenth grade teacher, and I am trying to teach my students about idioms. Create some new idioms in English that my class and I can use for the remainder of the school year.

Make It Real

Grades PK–1

- Highlight a letter of the alphabet each day by asking AI to give a list of three words beginning with the letter, then having students add to the list throughout the day.
- Create a word-of-the-day game by asking AI what common word you should use today, and what movements, gestures, or facial expressions students should make when they hear the word.

Grades 2–5

- Show students common idioms from many different cultures and see what kind of list they can come up with on their own. They may find it's hard to recognize their own idioms because they feel "normal."
- Give students a script using multiple imagined idioms created by AI and see if they can guess what the idioms mean.

Grades 6–12

- Generate a list of common idioms for your region. Assign each student one of those idioms and see if they can trace it back to its origins. This is also a good time to show the difference between popular myths and sourced information.
- Have students create idioms using modern beliefs or habits.



Play with AI

When AI invents an idiom, can it also invent a history for it? How much of that history seems true or false? Can it predict idioms (or even slang) for the future or create idioms for fictional places?



Create a Budget

It can be challenging to find genuine and realistic math examples for students to look at and learn from. And many adults wish they'd learned more financial literacy when they were in school. Why not consider using AI to generate some sample budgets for your class to analyze? Simply copy and paste them onto a document or spreadsheet once they're done.



Sample Prompt



Imagine that I am a local small-business owner who sells (insert goods here). Create a yearly budget with expected income and expenses on a table that I can copy and paste into a spreadsheet.

Make It Real

Grades PK–1

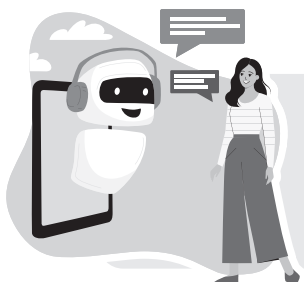
- Ask an AI image generator to create pictures of items with their cost on them (or even with pictures of currency included) for students to explore in a “class store.”
- Asking AI for some creative fundraising ideas for preschoolers will create an extensive list. The best part? You can ask it to follow up and write a letter to parents letting them know about the fundraiser.

Grades 2–5

- Ask students to imagine one thing they would love to add to the school. (Waterslide? Trampoline room?) Use AI to create a budget for the improvement and to help make a plan for how long it would take to raise the money or how many candy bars they would need to sell.
- Use an AI budget as a springboard for students to create their own. Give them a business idea and see how they can change or adapt their budget to fit their idea.

Grades 6–12

- If you want your students to become familiar with specific economic terms, AI can do that for you! Just ask it to include those terms in a budget.
- After your students analyze a sample budget, what changes would they make? Copy and paste the AI budget into a document you share with them and let them edit away.
- Each student can have a personal finance discussion with AI by telling AI their goals, and then they can start a plan for how to earn and save to achieve them.



Play with AI

If a student in your class has an entrepreneurial mindset and already has goals and plans for their own business, show the student how AI can not only create a budget, but can also create a plan for growing a small business.

I Need Exemplars

Sample Prompt

Read this essay question about best presidents and give me some high-quality responses that I can share with my students: In three paragraphs, make a case for who you think is the best president in US history.

Response

Abraham Lincoln is widely regarded as the best US president due to his leadership during one of the most tumultuous periods in the country's history. He was instrumental in preserving the Union during the Civil War, and his efforts to abolish slavery with the Emancipation Proclamation helped to end one of the most oppressive institutions in American history. Lincoln's commitment to democracy and equality for all citizens is a legacy that still resonates today.

Lincoln's leadership during the Civil War was marked by his unwavering commitment to preserving the Union. Despite facing significant opposition from both the Confederacy and his own government, Lincoln remained steadfast in his belief that the United States was indivisible. His ability to rally the country behind him during this difficult time helped to inspire a sense of patriotism and duty in the American people. His Emancipation Proclamation further solidified his legacy as a leader committed to justice and equality.

Lincoln's lasting impact on the country can be seen in the fact that his ideas and principles continue to be celebrated and emulated today. His commitment to democracy and equality is a shining example of what the United States can achieve when it is led by someone who believes in the power of the people. For these reasons and many more, Abraham Lincoln is widely regarded as the best US president in history.

Math Manipulatives

Sample Prompt

What are eight random cards from a standard deck of fifty-two?

Response

Sure, here are 8 random cards from a standard deck of 52:

King of Spades	5 of Diamonds
8 of Hearts	Queen of Clubs
Ace of Diamonds	2 of Hearts
10 of Clubs	Jack of Diamonds

Play with Language

Sample Prompt

I am a tenth grade teacher, and I am trying to teach my students about idioms. Create some new idioms in English that my class and I can use for the remainder of the school year.

Response

As snug as socks in shoes: Feeling comfortable or at ease in a situation. Example: "After a few weeks in our new home, we feel as snug as socks in shoes."

Tossing feathers in the wind: Wasting time on fruitless efforts. Example: "Arguing with him about politics is like tossing feathers in the wind."

A butterfly in a hurricane: Feeling overwhelmed or out of place. Example: "Starting a new job can make you feel like a butterfly in a hurricane."

Baking biscuits on a cold stove: Attempting to achieve a goal without taking the necessary steps. Example: "Expecting to pass the test without studying is like baking biscuits on a cold stove."

Juggling marbles on a tightrope: Handling an extremely challenging or precarious situation. Example: "Balancing work and family life feels like juggling marbles on a tightrope."

A glass of water in a desert: Something rare or highly sought after. Example: "Finding an affordable apartment in this city is like finding a glass of water in a desert."

Create a Budget

Sample Prompt

Imagine that I am a local small-business owner who sells handmade jewelry. Create a yearly budget with expected income and expenses on a table that I can copy and paste into a spreadsheet.

Response

Category	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Income													\$50,000
Cost of Goods Sold													\$12,500
Gross Profit													\$37,500
Expenses													
Rent	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$6,000
Utilities	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$1,200
Supplies	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$6,000
Marketing	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$3,600
Insurance	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$600
Professional Fees	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$2,400
Total Expenses	\$1,650	\$1,650	\$1,650	\$1,650	\$1,650	\$1,650	\$1,650	\$1,650	\$1,650	\$1,650	\$1,650	\$1,650	\$19,800
Net Profit													\$17,700