A Little Book of Curiosity

by Sarah Smith and Claire Steele



Curiouser and curiouser!

Children are born with natural inquisitiveness and employ all their senses to help them understand the world around them. This is because they are seeing, hearing, touching, smelling and tasting things for the very first time! This innate curiosity is essential to healthy child development, and caregivers who respond positively to a child's need to explore can help children develop the self-confidence needed to interact with new people and objects, and to engage in new experiences.¹

As children develop, exploration becomes more and more important. When a child learns how to sit up for the first time, they notice more objects that they can interact with. Then, as their fine motor skills develop, children start to grasp and manipulate these objects in order to get a better sense of how they work and what they are for. They use their innate curiosity to transform the unknown into the known. This inquisitiveness is present in all children and provides them with opportunities to interact, explore, and participate in meaningful experiences.²

When children start to understand and produce language, they use simple words to learn more about the world. By 36 months, children are already starting to ask questions and a study by the University of California (Merced) found that children aged between 2 and 5 years old ask an average of 76 to 95 questions per hour when talking to adults. They seem to be curious about everything!³



What exactly is curiosity?

Curiosity is recognising that there is something unknown that we want to know, and a desire and excitement to find answers to questions that pique our interest. It is the pleasure that we experience from learning something new and is ignited when there is some kind of ambiguity or problem to be solved.⁴

Curiosity prepares the brain for learning and when we are curious, we are better able to learn and remember. However, as children progress through formal education, their level of curiosity decreases significantly and by the age of 10, children express very little curiosity at school.⁵ There are several contributing factors which cause this, including a focus on right or wrong answers that leave no room for ambiguity and an emphasis on summative assessment which encourages memorisation rather than exploration. Why is it so important for educators to encourage curiosity in their classrooms?

A heightened level of curiosity increases student engagement and motivation, and develops persistence as students search for answers. It improves concentration and encourages critical thinking as well as collaboration with peers. It improves well-being and children with higher levels of curiosity are more likely to explore, share their interests and express excitement! Importantly, it is a cornerstone of creative thinking.⁶

Cultivating Creativity

Are you creative? For many of us, this is a difficult question to answer, and our responses are usually based on some misconceptions about what creativity really is. We might imagine a famous poet, musician, artist, or inventor or believe that creativity belongs to a special group of people or geniuses. It is a mysterious - even mystical - notion yet every human being is capable of being amazingly creative. Augustín Fuentes describes creativity as 'the ability to look at the world around us, see how it is and imagine other possibilities that are not immediately present or based on our immediate personal experience. Creativity is seeing the possibilities and then trying to make these imaginings into material reality.'7

It is more useful, then, to think about creativity in terms of creative thinking skills, and to focus on the creative process rather than the final product. Experts describe creativity as a structured process that can be applied in all areas of study and work, and that can be explicitly taught to students of all ages.⁸ Claxton describes creativity as 'a constellation of more clearly identifiable habits of mind, all of which are capable of being practised in school.'⁹

What do creative thinkers do?

To encourage children to think creatively, we need to understand what creative thinkers do. In fact, the creative process draws on the whole brain.¹⁰ When faced with an intriguing problem or task, creative thinkers allow themselves to make impractical or nonsensical suggestions without criticising these ideas early in the process. Creative thinkers tend to look for many possible answers and solution paths to problems, allow themselves to make mistakes and then learn from what didn't work just as much as from what did. They also tend to daydream, doodle and play.¹¹ For children and adults alike, imaginative play is essential to creativity.

Crucially, creativity is a collaborative undertaking and working with others provides us with many different perspectives to help us creatively think.¹² Steiner states that every very creative person has a least one other person in their life who doesn't think they are mad! ¹³

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Why is it important to teach creative thinking skills?

Developing creative thinking skills provides significant emotional, social and intellectual benefits to children. Creativity allows for an emotional outlet, develops, and hones communication and collaboration and improves problem-solving and critical thinking skills. It allows children to accept and deal with failure, develop persistence, and to be more flexible in their thinking.¹⁴ Those who adopt a creative lifestyle are usually more open-minded, curious, active, outgoing and tenacious.¹⁵

Current school-aged children face huge instability and uncertainty. With the pace of cultural and social change accelerating more quickly than before, we are unsure what the world will look like for them in the future.¹⁶ Therefore, there is global demand for creative thinking skills to help future generations navigate such unpredictability. Consequently, creativity should form the heart of education, rather than constitute an optional add-on. How exactly do we develop creative thinkers?

Claxton says that we need to change the educational landscape by making the classroom a space in which children become investigators rather than consumers of education.¹⁷ We must remember that creativity arises from curiosity.

eltonix proposes our 3 techniques to use in the classroom to help students develop creative thought and put them firmly in the role of investigator:

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Encourage curiosity and a sense of wonder



Encourage students to closely observe the world around them

Apply creative constraints in the classroom



Encouraging curiosity and a sense of wonder

Einstein apparently once said, 'I have no special talents. I am only passionately curious.' While there is no scientific evidence that we can teach children to be more curious, we can create situations that ignite curiosity and get children wondering about the world around them. Encouraging children to ask questions is a good place to start but the real creativity lies in getting our students to ask great questions!

TRY THIS

Walls of Wonder

Before your students start a unit in the coursebook, give them the topic, and get them generating as many questions as they can about the topic, and preferably, questions they would like to have answered. They can stick these on the Wall of Wonder, a dedicated space for students to collect their questions. As they progress through the unit, students can periodically return to the Wall of Wonder to see if their questions have been answered. This Wall of Wonder was created by students who were about to start a unit about whales.



Now that students have generated plenty of questions, get them reflecting on which are the best questions to answer using a question continuum. Students place the questions along the horizontal axis in terms of how interesting the answer is likely to be. They place the questions along the vertical axis in terms of how difficult the question will be to answer. They should then focus on the questions in the top-right corner of the question continuum (the questions that are the most interesting and the most complex). For example, students decide which questions from their Wall of Wonder about whales are the best to ask using the Question Continuum.



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QUESTION CONTINUUM

COMPLEXITY	ARE WHALES SHYP	DO WHALES HAVE DIFFERENT ACCENTSP
	WHAT DO WHALES EATP	How deep can whales swim?
INTEREST LEVEL		

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Flipping it! If this is the answer, what's the question?

Instead of supplying questions for students to answer, provide answers to questions and ask students what they think the questions are. For example, you might provide images, words or short answers like:

- a. Through fungal filaments and through the air.
- b. To communicate what they found and where it is.

It's up to the students to figure out what the question is.

(a. How do trees communicate? b. Why do bees dance?).



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TRY THIS Reversa

Reversal thinking

Reversal thinking is a creative approach to problem-solving which involves asking opposite questions to generate novel ideas. For example, instead of asking how to solve a problem or how to achieve a goal, you ask how to make it worse or how to stop this happening. This helps us identify risks and gaps which can then be flipped into positive solutions. For example, instead of 'how can I learn words more quickly,' you ask, 'how can I learn words more slowly?' Students might answer 'never write them down' or 'try your best not to use them' which can then be flipped into positive solutions.

You might ask students 'what's the worst place for a palm tree to grow?' or questions that are not solution-focused but merely creative like, 'do ghosts believe in us?' or 'do dogs walk us?'

This disrupts typical patterns of thinking and gets students comfortable with questions which don't have a single right answer.





Wondering aloud

When dealing with questions in the coursebook, before students search for the answers, encourage them to wonder aloud first. For example, say 'I wonder why trees are disappearing' and 'I wonder why trees are important.' Practising wondering aloud helps model curiosity to your students and after they get used to this, you can encourage them to do the same.

@KCI live ...

Do towns have more green spaces now than in the past?

How can we create more green spaces? How much forest is

there in the world? Why are trees disappearing?

Why are trees important?

Using open-ended questions

Where possible, rather than asking closed questions, ask open-ended questions which start with 'who' 'what' 'when' 'why' and 'how' to stimulate curiosity. Encourage the students to do the same. The Curiosity Corner often asks these kinds of questions!

> Curiosity How long can trees live? Investigate.

Redirecting rather than discouraging

Give your students space to safely explore their interests. If a student is interested in how plants grow but it's too risky to take the class outside and explore, instead of discouraging the student, redirect. Start a small class garden or encourage students to bring a plant to class to examine.

3

Answering questions simply and clearly

Before answering yourself, ask other students in the class if they can answer. If you don't know the answer, think of ways in which you can find out together with your students.

Encourage 'what if' thinking

'What if' questions are a great way to spark creative thinking and can be used as a warmup activity. You take a prompt or topic and encourage students to wonder 'what if.' For example, when showing students a fact like this one from the Curiosity Corner, you can model some 'what if' questions like 'what if humans lived underground?' or 'what if whole cities moved underground in the future?' before encouraging students to come up with their own. This sparks imaginative questions and answers!





Using Pose – Pause – Pounce – Bounce techniques

This questioning sequence aims to engage students with questions asked in the classroom and encourage deeper thinking and responses. The teacher (or a student) asks a question (pose), pauses for 3 seconds to allow all students to think, pounces on one student for an answer, and then bounces the answer to another student for them to build on or challenge the response. This encourages all students to participate and encourages active listening.

Having Question Time

Encourage students to ask questions by keeping a big sheet of paper on their desks, one per group. During the lesson, every time a student thinks of a question, they write it down on the sheet of paper. At intervals during the lesson, give students time to ask the questions that haven't been answered.



Using versatile materials

These can be things like sand, clay, water and art material that students can do what they want with. These are better tools than toys which are designed to serve specific purposes, and with raw materials, students can use their curiosity to help them engage and manipulate them.

6





The Powers of Observation

Children are fascinated by the world around them and observe their surroundings closely using all five of their senses. Initially, children observe using the five senses synchronously – sight, sound, smell, touch, and taste. Over time, they start by developing simple explanations for their observations and then start coming up with more complex interpretations of the world around them.¹⁸ These natural observation skills go beyond just passively looking at people and objects. Instead, children see, hear, feel, touch and taste things to explore details and this triggers further questioning and curiosity. Teachers can tap into these observation skills in class to activate their students' creative and inquisitive minds.



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Leonardo Da Vinci is one of the most prolific observers of the world and one of most creative minds of all time. He kept lots of notebooks in which he observed certain phenomena. Through his notebooks, he taught us to look and then look again, to see things unseen, to go down rabbit holes and get distracted. He encouraged people to daydream and to indulge in fantasy. Da Vinci's greatest skill was his powers of observation and experts say that "it was the talent that empowered his curiosity, and vice versa. It was not a magical gift but a product of effort."¹⁹

We can provide our students with many opportunities to closely observe the world around them by adapting coursebook activities and tasks to allow children to see and think more systematically.

- Help students organise their own notebooks by dedicating the left side to doodling and noting down interesting thoughts and observations and the right side for *best draft so far*. Very often we ask our learners to keep a neat notebook, but let's allow them to play, doodle and draw.
- Encourage students to keep a record of conversations, images, quotes, fleeting thoughts/reflections in a separate 'observation book.' This could take the form of a collage.
- Display the process of creating an artwork, or poem, etc. on the walls and not just the creative product itself but the drafts and the thought patterns. This shows the thinking process involved. By doing this, we are valuing the creative process as much as the final product.²⁰



Let's have a look at how we can adapt existing coursebook activities. This is an activity from **Curious Kids** Activity Book 2 in which the students learn vocabulary. Here's how we can extend this to allow our students to observe.

Π

safari park

6

1 🖉 Look and write. Colour the places you want to go to.

aquarium beach funfair mountains

safari park skate park village water park

- The students choose a place e.g., a water park or an aquarium. They keep this secret.
- The students close their eyes and visualise their chosen place.
- Read out the following prompts for students to visualise and then to write down the answers (this could be in words or sentences).

Prompts:

- What colours can you see?
- What shapes do you see?
- What can you hear?
- What can you smell?
- What can you touch/feel?
- How do you feel?
- The students share their responses with their partner who then guesses which place they chose.
- The students use their answers to make a poem. You can give them a model poem to help, and they have to guess the place.

(Model poem)

Blues and bright colours like red and green. Circles and slides. Children screaming and laughing. Hot-dogs and sunscreen. Water. Excited.

Follow-up opportunities

The children could take a photo of their favourite place, bring it to school, and make their own poems.





Applying creative constraints in the classroom

Chapter 3:

Many people associate creativity with absolute freedom. But what happens when we ask our students to draw a picture or write a story in the classroom and give them a blank slate to work from? Often, students freeze, their minds go blank, they don't know where to start and the results are not something they are particularly proud of. Instead of a tabula rasa approach, it is more useful to view the creative process as 'the challenge of balancing various constraints in a constructive manner'21 and that 'the more constrained the solution paths, the more variable, the more creative the problem solvers.' We can design or adapt tasks with creative constraints to get our students creatively problem solving.

How can we apply creative constraints in our classrooms to get students problem solving and creatively thinking?





How to apply content constraints to tasks

TRY THIS

Unlikely combinations

One way to apply content constraints is by giving students prompts that they should use during a task. It's even more fun if you keep the prompts hidden and students choose them at random. This encourages greater problem solving as students need to make links between the prompts.

For example, in this Creative Thinking corner, students have to prepare and act out an interview about a famous person's hobby. So that the task has constraints, get them to choose a famous person card (between 1 and 5, e.g., Harry Styles, Jenny Ortega, Selena Gomez, Lizzo) and then a hobby card (between 1 and 5 e.g., Lego, skateboarding, yarn bombing, karaoke).

The challenge is for the student playing the celebrity to come up with ideas for why they do this hobby, how they got started, why they like it (etc.) and for the interviewer to come up with questions about the hobby.

stive Thinking

Prepare and act out an interview about a famous person's hobby.





'Six ways to'

This is a strategy used by artists, designers and inventors to encourage innovative idea generation. Students are given a grid (2x3). In each box, they should come up with 'six ways to do something' using images or words. The prompts should be very specific and related to the topic you are teaching. For example, you can ask students to come up with six ways to squeeze a lemon (in a unit about food), six ways to wait at a bus stop without access to technology (in a unit about transport) or 'six ways to hide a giraffe.' There are no right or wrong answers and students can share their ideas in feedback!



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TRY THIS

Using student-generated images

Students take a photo of their favourite object/toy/character at landmarks in their own town/city. They could also take a character from their coursebook. Students must include a photo of their item/character at a historical monument, at a place of cultural importance, at the student's favourite place and at a place they think no one knows about.

Students bring their photos to class and display them. Students add captions under each photo (the captions can contain structural or language constraints – see pages 16 and 17 for some ideas on structural and linguistic constraints). Students display their photography in a gallery in the classroom and take their partner on a 'tour.'

How to apply structural and language constraints to tasks

TRY THIS

Happy Haikus

Haikus are a fantastic way to help students work within syllable constraints and students can use pretty much anything as inspiration to write about! A haiku is a Japanese poem comprised of three lines and seventeen syllables, with five syllables in the first line, seven in the second, and five in the last. For example, ask students to look in their school bag and find an object that's important to them or that they use every day.

> Students write a haiku about that object, using the following prompts: Line 1 (5 syllables) – describe the object Line 2 (7 syllables) – say what you use it for Line 3 (5 syllables) – thank it

They then give their haiku to their partner who has to guess what the object is. An example is: Plastic, rectangular, You help draw all my straight lines, Thanks for measuring.

(Answer: a ruler).



5 words or less story

Give the students a prompt to choose from, for example, your first day at school, your friend's birthday party or meeting your favourite celebrity. The prompts can include events that your students are likely to have experienced or they can be completely imaginary. The challenge is for students to write a short story about the event but each sentence can only contain five words or less.

Here's an example using the prompt 'my first day at school:'

It was cold. I wore a jacket. My new school uniform. A bit itchy. The teacher smiled. Lots of new faces. I was scared. The classroom was warm. We read a story. About bees. They're very important. I learnt a lot.

Students can then be encouraged to build up the phrases into full sentences or reduce them further to just a few words!

TRY THIS

Buzzwords

Give students specific words/phrases to use during a task (these could be vocabulary from the unit you just studied) or words/ phrases that they can't use (these could be words that students tend to overuse). For example, in the Creativity Corner below, you could provide students with a list of words that they must use in the podcast series:

Words to use	Words to avoid
Questions	Podcast
Curiosity	Experts
Curiosity	Experts





Here are 5 top tips for teachers to encourage curiosity and creativity in the classroom.

Supportive classrooms

Being creative means that we need to accept uncertainty. To get students more comfortable with uncertainty and ambiguity, make it clear that there are no right or wrong answers and that all ideas are welcome. Allow students to contribute their ideas and make sure that each idea is valued. This sense of support and willingness to accept all ideas is key to fostering a classroom of creative thinkers.

Collaboration

2

"Genius starts with individual brilliance. It requires singular vision. But executing it often entails working with others. Innovation is a team sport. Creativity is a collaborative endeavour."²² Bouncing ideas around and listening to the perspective of others is all part of the creative process. Encourage group work and group discussions during the task to encourage more collaboration.

Questioning

To foster a sense of creativity and curiosity, we can reduce the number of questions that we ask our students which have a clear, known answer. Instead, try asking questions which get students reflecting on the creative process and which prompt exploration and experimentation. We can do this when monitoring and guiding our students on task, for example:

'That's a great idea. How did you come up with it?'

'What if we change this? How is it different now?'

'Why don't you share your thoughts together and see if you create a new idea?' Nurture the creative process

Creative thinking skills happen in the process of creating a product or coming up with a solution to a problem. Therefore, we need to help our students reflect on their thought processes.

We can do this by getting our students to reflect on the process (see self-regulated learning & feedback), giving enough time to the process, documenting it through photos, or drafts and displaying these in the classroom to help students discuss their creative journey.

Self-regulated learning & feedback

We can help our students set learning goals, monitor their progress and evaluate their own learning process. Involve your students when setting the objectives of the task (what they need to do, and how). After they have finished the task, you can give them activities to reflect on their own and others' learning, their progress, and how they felt during the task. Here is an activity called 'dice debrief':



In groups, students reflect on the task they've just finished by rolling the die and answering the prompt (these can be adapted) which corresponds to the number they rolled, for example:

- 1 Share one thing you enjoyed about the task.
- 2 Congratulate someone who did a great job and tell them why.
- 3 Share something you learnt that you won't forget.
- 4 Did your ideas change during the task? How?
 - 5 How did you feel during the task? 6 - What can you practise more?



Endnotes

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Would you like to learn more?



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