

Asking Big Questions

Use this tool to normalize uncertainty
by encouraging children to ask big questions.

Step 1

Decide what content you want children to learn. Your learning goals might be motivated by national, state, or local standards; school-based goals, expectations, or values; or important current events or topics of interest. Assume that there are connections between what the children care about and what you want to teach, and ask questions to create inquiry on a local level. Your questions might frame a long-term project, a week's investigation, or an hour-long experience.

Step 2

Observe individuals, as well as groups of children in your classroom. Children's emotions often propel them into learning experiences. Observe children's play, conversation, social interaction, and engagement to discover what children care and wonder about. Document your observations via notes and photos, videos, or audio recordings.

Step 3

Connect learners to each other to encourage curiosity about multiple perspectives and diversity. Facilitate conversation that supports thinking from a variety of voices. Listen carefully and share with children your own curiosity about their thinking. Continue to document.

Step 4

Review your documentation with one or more colleagues to identify connections between your learning goals to develop questions that connect children's interests to the learning goals. Invite colleagues to notice things you may have missed. Together, brainstorm one or more questions that connect children's interests with local or global issues or concerns.

Criteria for choosing a question that normalizes uncertainty and conflict include:

- speaks to what both adults and children are curious about
- provides multiple entry-points
- calls for imagination and playfulness
- evokes powerful emotions
- encourages collaboration

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Step 5

Developing questions is its own inventive process. Play around with the wording of questions over time Based on what you're observing. Formulating a powerful question can be challenging; in general, simple is stronger and more elegant. Settling on a good question often feels right or aesthetically satisfying; beautiful questions address the heart of what you are asking.

Step 6

Post questions in the classroom — on a wall or table, by a set of materials, in the math area — in order to provide a reference point for ongoing thinking and meaning-making. Such questions remind you (and others) to learn alongside the children in curiosity and wonder.

For video examples and reflections on practices that inspire inventiveness, become an Opal School Online Sustaining Member at learning.opalschool.org.



Children need to be immersed in a culture that celebrates, and provides multiple opportunities for, asking big questions.

Invention always begins with a question: “What if?” Inventors pose and respond to big questions: “What problems do people experience?” “What might be created to solve those problems?” “How will the world change once these inventions are introduced?” Inventors need to be able to see the world as it is, but also to imagine how it could be different. They need to practice transgression, recognizing that the status quo isn’t sufficient. Inventors think of things no one has thought of before; they respond to uncertain questions by combining ideas and materials in new ways. The questions teachers ask have an enormous impact on children’s capacities to embrace the uncertainty of things as they are, and to imagine possibilities for a better world. Of course, teachers ask all types and sizes of questions, some planned, some in the moment. Questions can either invite participation or encourage compliance. This tool helps teachers plan big, open-ended questions that value the known and the unknown. Provoking responses to such questions makes children’s thinking visible so it can be deepened, extended, or challenged.



Suggested Time Frame

Questions can spark an individual conversation or be used throughout the year. Posing complex questions across subject areas keeps inventiveness flowing.

When and How

All the time!

Tips and Variations

Some questions are worth returning to over time because of their ability to surface children’s thinking. The following protocol can be used in either class-wide or small-group reflections, with images, text, or artifacts that have the potential to lead to invention or action.

1. What do you notice?
 2. What else are you noticing?
 3. What do you think when you see ____ ?
 4. What do you wonder?
 5. How does it make you feel?
 6. How might we respond? What can we do? What could we invent?
- Use a staff meeting to ask teachers to review documentation of children’s thinking from the classroom and make connections to learning goals or current issues or events in your local, national, or global community.
 - See the resource, [Asking Questions that Meet Standards while Supporting an Inventive Mindset](#), for examples of questions that are more or less likely to inspire inventiveness.



Asking Questions that Meet Standards while Supporting an Inventive Mindset

A resource for Asking Big Questions

Engaging children from the very beginning in identifying problems themselves, rather than posing problems for them, supports the development of an inventive mindset. The standards below come from the State Content Standards for California Public Schools (Oct. 2011) and the Next Generation Science Standards (2013). Each standard is followed by examples of questions that are more or less likely to support an inventive mindset.

Science Content Standards for California Public Schools (Grades 3 - 4): Objects in the sky move in regular and predictable patterns (Standard #4, p. 3.47; 2011).

Finding out what children already know helps connect children to mandated content. Grade 3 and 4 students likely know how the moon's appearance changes during the four-week lunar cycle. Beginning a study of the phases of the moon with the first set of questions below asks for factual recall and vocabulary; they do not require students to make personal connections to the subject matter. The second set of questions invites children to share their experiences, observations, stories, and questions with each other. Such open-ended questions help children learn how to learn. They keep children's focus on being comfortable with uncertainty and finding out, rather than on being certain and right.

Questions that review content knowledge – that reinforce the way the world is

- *What are the phases of the moon?*
- *What creates the phases of the moon?*
- *How long does each phase of the moon last?*

Questions that inspire inventiveness – that help us imagine what the world could be

- *What have you noticed about the moon?*
- *What do you think is going on?*
- *What do you wonder?*

History-Social Studies Content Standards for California Public Schools (Kindergarten): Students understand that being a good citizen involves acting in certain ways ... (3) Know beliefs and related behaviors of characters in stories from times past and understand the consequences of the characters' actions (Standards K.1 and K.1.3; p.3; 2000).

Questions that review content knowledge – that reinforce the way the world is

- *What are three ways the character in this story was acting like a bad citizen?*
- *What were the consequences of his bad behavior?*
- *Where in the text does the character state a belief?*

Questions that inspire inventiveness – that help us imagine what the world could be

- *What did you notice about the characters in the story?*
- *How would you feel if you were treated that way?*
- *Why do you think the character made those choices?*
- *How do you think things might have turned out differently?*



Next Generation Science Standards (Grades 3-5 Engineering, Technology, and Applications of Science [3-5-ETS1-3] Engineering Design): Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Questions that review content knowledge – that reinforce the way the world is

- Where were the failure points in your design?
- How can you introduce three variables that will make your [prototype] unique?
- How have others been successful in responding to this problem, and how will you include those responses in your own design?
- What will you control for in your tests?

Questions that inspire inventiveness – that help us imagine what the world could be

- What problem would you like to solve?
- How can you design a prototype that is likely to solve this problem?
- How will you test your design?
- How will you gather feedback?
- What will you do to improve your model?
- How would you like to share your invention with the world?

(At first glance, the first set of questions above may not appear to be as closed as the first sets in the previous examples. However, a closer look suggests that, although multiple responses are possible, the first set of questions above still tend to refer to the world as it is. These questions imply that the teacher has provided the problem that the model or prototype is intended to address, that the problem can be solved in only a few ways, and that the criteria for a successful design are already known.)



Sample Big Questions

A resource for Asking Big Questions

There are many different types of big questions. Good big questions inspire an inventive mindset that encourages children to pose their own big questions. Big questions can normalize uncertainty, make space for imagination, and connect children's interests with local and global issues. They can provoke children to engage deeply with materials or ideas, and encourage them to move beyond assumptions when conflicts arise. The questions below have been loosely categorized.

Big Questions that Connect Personal, Local, and Global Issues

- *How might nurturing our relationship with the natural world support empathy and agency and grow our abilities to think and act creatively and collaboratively for the good of everyone?*
- *What does it mean to be a citizen?*
- *What can we do with feelings of injustice in our current experience or as we learn about our history?*
- *How might understanding stories of the past help us better understand issues of today? How does history help us live our lives?*
- *What becomes possible when we share our strengths with our community?*
- *Why do different people see the world in different ways? What happens when people with different worldviews come together?*
- *What are the connections between what makes you change and what makes the world change?*
- *How might sharing what I need as a person help me understand what we need as a community?*
- *What does it mean to care for something bigger than yourself?*
- *How can we move from recognizing that there are different perspectives to seeking understanding of those perspectives?*

Big Questions that Encourage Reflection

- *How can reflecting on our thinking and feeling deepen our understanding of ourselves and others?*
- *What surprises will you encounter when you slow down and zoom in on ____ ?*
- *What are you hoping will happen when people look at your work?*
- *How is ____ similar? How is it different? What new ideas will emerge?*
- *Where do ideas come from?*
- *What word or words capture your exploration today? What ideas did you find in your play?*
- *Why do we reflect?*
- *Who are you as an idea-maker?*
- *What do we do when we are reading?*
- *What happens in our brains when we do math?*
- *How do stories connect us?*
- *How are ideas like seeds?*



Big Questions about Teamwork and Community

- How do you know when you are doing teamwork? What does teamwork feel like?
- What is difficult about teamwork? What strategies do you use to make it easier?
- What does it mean to listen to somebody else's idea? How can we build our ideas together?
- What happens when our ideas connect? What do we discover by snapping our ideas together? How does it feel?
- What remains important to each of us while we uncover what is important to all of us?
- How can we work together to _____ ?
- What did you learn about your partner? What did you learn about yourself?
- What do you know about collaboration?
- What have we discovered that can help us collaborate? What language invites and supports collaboration?
- How does play support collaboration?
- Who are we as a community?
- What leads people to act on behalf of others as well as themselves? What happens when they do?

Big Questions about Materials

- Can you make a drawing to show me what you mean?
- What happens when stick and wire meet? What stories might they tell?
- What connections are revealed when children play with materials, ideas, and theories?
- How might [blocks, _____] be a place to snap ideas together?
- As you play, what stories do you discover in these materials?
- How can you use line and color to express emotions?
- What new possibilities exist within a familiar material?
- What happens when we slow down and look closely to capture what we see?
- What materials do you need to help you grow your ideas, stories, and research?
- What ideas will we build together?
- What role do materials play in building relationships?
- How does observational drawing allow us to consider multiple perspectives?
- What can [charcoal] do?
- How can taking things apart teach us about what holds a community together?



Big Questions about Emotion and Conflict

- How will encounters with [e.g., insects] help us explore powerful emotions that might arise like fear, possessiveness, wonder, delight, and love?
- What happens when we hit someone in our community?
- What strategies can you use to solve a problem?
- What is peace?
- What lives in your heart?
- What does it mean to be a friend?
- What do friendships need to grow and flourish?
- How do you figure out what to do when you don't know what to do?
- What does it mean to be an active participant in a friendship?
- Why do things go wrong sometimes and what would the world be like if they didn't?
- If you face a challenge, how can you seek somebody else's perspective on it?

Teachers' Big Questions

- How will children's encounters with [e.g., insects] provide opportunities for us as a learning community to explore conflict, empathy, and caretaking?
- What might we learn from the children when we listen to their thoughts about numeracy and mathematical thinking?
- How might a child's questions and ideas become invitations for others to explore?
- How might this way of teaching attend to content standards in a way that is meaningful and connected to the interests of children?
- How do children learn through play?
- What would be lost if we did not invite children to collaborate?
- What is the relationship between curiosity and critical thinking?
- How can playful inquiry nurture empathy and advocacy?
- What becomes possible when children create a world together from their collective imagination, strength, and joy?

