Strategies to Use in the Content Areas:

>>The ideas I am outlining for you in this section are just the tip of the learning iceberg, they are a starting place. Be creative…there are so many resources full of phenomenal ideas to explore, even many created by teachers for teachers!

2 great examples of recall and review learning that can be used in any class:

Free Recall:

--Have students spend those vital last 10 minutes of class writing everything that can remember about the lesson on a blank sheet of paper. After 10 minutes, they can use their notes to fill in what they missed, which can even be done for homework.

Summary Sheets:

--Ask students to submit a single sheet of paper at the beginning of the week summarizing the previous week's materials, including key ideas, drawings, and graphs. Being mindful of previous week's related lessons is a great way to begin a new week. Have students share what is on their summary within a small group or with the whole class. [113]

--I have always believed in continuous review of material taught (and the evidence certainly supports it), rather than intense studying, or cramming, for assessment purposes. I ask my own children to take a few extra minutes to review their class notes/lessons daily, which results in actual learning over time, as opposed to "learning" the material for a test and good grade.

--Another classroom idea to help students develop a growth mindset is having them write about something they used to *not* be good at but that they are good at now. Have them include the steps they took to become better at it, how did they change their thinking, what they were feeling, and/or how they were acting in order to improve?
Follow this by asking students to write about something they want to be good at, a goal, and their specific plan to achieve that. Follow up to see what

[113] Robinson, 2017

they have done/are doing and how they are doing in accomplishing their goal. Once accomplished, they can set a new goal and plan for its success. [114]

Language Arts:

--Language arts is one of the easier content areas to depict both growth and fixed mindset by using characters in literature. Students can see that people are capable of change and growth, and that traits are not permanent, and what happens when there is no growth and change. Literature shows readers what is possible in their own lives and in the world around them. Students can see different results based on how characters approach challenges, as well as how one perseveres through difficulties to achieve their goals. [115]

--Literature and follow up discussions guided by the teacher can help students consider multiple perspectives and strategies for solving various problems. In this way, students learn that there is more than one approach when faced with an obstacle, as well as how one can work toward finding the best strategy. Questioning, once again, is a useful approach when delving into literature, to encourage the all-important critical thinking. [116]

--Teachers must: consider their literature choices carefully; highlight the process of learning, traits, and how they can change and evolve; give purposeful, process-oriented feedback; and invite students to question different views. There are also many non-fiction pieces students can read to see successful people overcome their setbacks and go on to achieve their goals. [117]

--As a writing project that supports growth mindset, students can rewrite story endings from a fixed mindset to a growth mindset way of thinking and see how the story differs when guided by a positive (growth) mindset. [118]

--Comprehending literature—reading carefully for deep understanding is a challenging and complex process, skills that must be taught to students. [119]

--Use open-ended questions and extended conversations. This invites multiple perspectives, encourages perseverance, and nurtures adaptable thinking. Use

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[114] Dweck, 2010
[115] Enriquez, 2017
[116] Enriquez, 2017
[117] Enriquez et al, 2017
[118] Dunham, 2016
[119] Sussman, 2017

discussion to strategize problem solving. Allow students to see there is not just one right way to approach obstacles and how to decide what is right for them. [120]

Books You Can Use to Discuss the Growth Mindset:

>>Read a **picture book** to younger students and ask questions like:
What did the character learn in the story? How did this make him or her change? What traits or beliefs allowed or prevented the character from succeeding?

On a Beam of Light: A Story of Albert Einstein – This book shows how curiosity made Einstein smart! [121]

Ishly — Shows that there is no such thing as doing things perfectly; growth and change are always occurring. [122]

Other suggested picture books:
The Day the Crayons Quit, The Dot, The Most Magnificent Thing [123]

3 **chapter books** to explore the growth mindset: [124]

Booked by Kwame Alexander;
Fish in a Tree by Lynda Mullaly;
Been There, Done That, School Dazed by Mike Winchell-children's authors share stories of their own school days

>>Read aloud then identify the characters with a growth mindset and fixed mindset. Choose a fixed mindset character then work in groups to rewrite the story and give that character a growth mindset. Discuss how the story differs with this positive mindset; small groups can share the changes they made and their new story endings with the class. [125]

[120] Enriquez et al, 2017
[121] Enriquez et al, 2017
[122] Enriquez et al, 2017
[123] Dunham, 2016
[124] Dunham, 2016
[125] Dunham, 2016

***A great resource for all things growth mindset in the classroom is Mary Cay Ricci's workbook:

Mindsets in the Classroom—Everything Educators Need for School Success.

--Within this workbook, Ricci lists 11 full pages of book suggestions for all grades to aid in exploring and reinforcing the growth mindset!

Social Studies:

--Social Studies is another content area where it is easy to point out growth and fixed mindset behaviors as one examines individuals, societies, and events in history. You can highlight stories of determination and the accomplishments of well-known figures from different historical periods. You can go beyond just teaching the history of an explorer or inventor and examine his or her obstacles and setbacks and what he or she did, good and bad, to overcome them.

--At times in history, individuals or groups have not overcome challenges, so you can look at what stood in their way and what they could have done differently, so students can learn from the mistakes of others. You should intentionally choose and share stories from history (and even alumni), that highlight achievements; stories of grit provide drive and fervor to overcome similar obstacles. [126] Again, the discussion that follows is as important as the story one is teaching.

Science:

--Reflective writing is a beneficial tool to use in a growth mindset science classroom. It comes from reflective thinking about what one has read, which is then used to construct one's own understanding of the material, as opposed to just memorizing and recalling facts. Reflective writing is a self-dialog about what one has read, but it should not replace discussions with others. This type of writing is not summarizing, but rather questioning what you have read and

[126] Fornaciari, 2017

how you relate to it. It is writing to negotiate meaning and construct knowledge. It involves reading, annotating, rethinking, and then writing rapidly on one's understanding. [127]

--Growth mindset concepts complement and reinforce the scientific design processes, since scientific investigations involve dealing with risks, mistakes, peer review, responding to feedback, and persevering through problems and multiple trials. [128] *Because* is a significant word to see in science (or any subject), since is usually comes before supporting evidence and examples, which are crucial. Scientists are wrong over and over before they discover or prove something…and that's okay! It is good for students to see how this process of trial and error works and that the errors are as important as the successful trials.

Math:

--In math, answers are generally right or wrong, but it is the actual process that is significant, the **"how"** in which one arrived at his or her answers. It is also **important to know what went wrong** if one arrived at an incorrect answer. [129]

--Most people must work to understand mathematics, trying different strategies and struggling to arrive at an understanding of the material. It is a growth mindset that prepares a student to struggle through this process to gain understanding; the student knows and accepts that the struggle is a crucial part of their learning. Expecting students to engage in tasks that require them to think mathematically and struggle towards an outcome, and supporting them in doing this, will help them develop and reinforce a growth mindset.

--A fixed mindset sees the struggles as a sign that they are "just not good at math." These students have no need for the all-important "tool box" of different strategies, since that just reinforces the fact that they do not have the ability to learn math. A fixed mindset is especially detrimental to learning math due to the complexity of the concepts for most learners.

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[127] Huang and Kalman, 2012
[128] Robinson, 2017
[129] Lee, 2009

--Math is a good subject in which to remember that not everyone will reach the same level, but everyone can improve their current ability level. Growth mindset math students enthusiastically learn one problem-solving technique after another, knowing these are what will help them improve as math students. Teachers need to support students as they learn to think mathematically and struggle with complex problem outcomes. Acknowledge the complexity of the task at hand, explore what went wrong in the learning process, and highlight what went right for others to learn from and model. [130]

--Classroom talk needs to be about the **effort needed** to attain the answers…"HOW did you solve that problem? WHAT strategies did you try? WHAT mathematical ideas did you use? NOT-What answer did you get?" Always focus on reinforcing how one was successful and how to improve and grow! [131] Again, how a teacher talks matters! Are you sending the message that *every student can improve their understanding of mathematics* and engage in the complex processes and concepts of mathematical thinking?

[130] Sussman, 2017
[131] Lee, 2009, p. 46