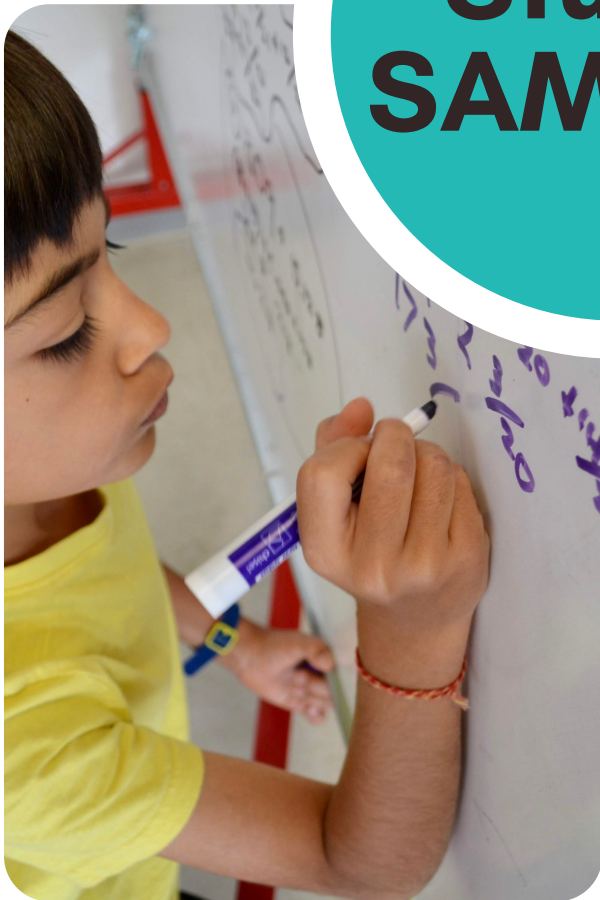
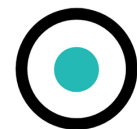


Studio SAMPLER



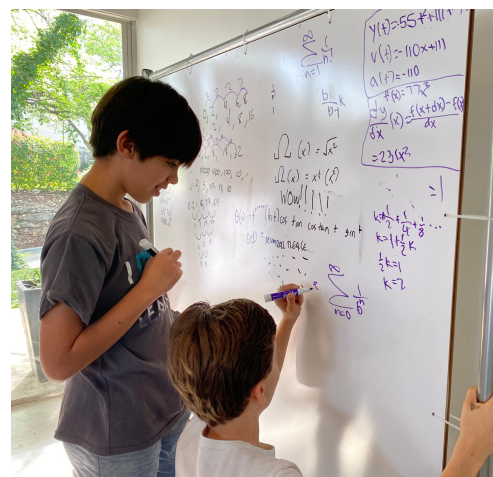
Studio Sampler



Studio is the portion in our Math Block when learners work in partnerships at a whiteboard; transparency is key. Partners explore equations and expressions from a set that requires a variety of mathematical understandings, which helps to make differentiation possible. With these Studio sets, learners practice, among many things, the new ideas discussed during a Concept Study in order to begin assimilating the ideas into their stock of knowledge.

This is not "worksheet masterypractice," rather an opportunity to try out new ideas and rehearse thinking aloud with support from a partner. This approach is the similitude of a beginner swimmer in a pool or an artist trying out a new technique. Along these lines, there is, at times, no expectation for learners to finish the whole set nor complete the prompts in any particular order.

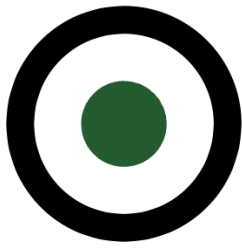
During Studio, a learner's ability to collaborate is perhaps more evident than in any other element of the Math Block. As partners work through a Studio set, one partner is the designated scribe, yet both partners must reach consensus on the approach to a particular prompt as well as the way in which the thinking is illustrated. Our norm for this collaboration during Studio is captured in a common refrain: "Two Minds, One Marker." Thus, effective collaboration, which we essentially define as creating together, is constantly modeled, coached, and commended. Learners are encouraged to listen critically to one another so that they are aware that learning comes from many sources, especially their peers.



Additionally, learners are supported as they attempt to use strategic questioning with one another. The coaching that learners receive from teachers is "lean" — teachers drop in and listen to the exchange between partners and give minimal feedback, being careful not to take away the learning opportunity or reduce the cognitive demand and to provide just enough feedback so that the learners can incorporate it into their practice. Lastly, learners work with their partners over the course of several weeks for them to have ample time to develop productive partnerships.



Included in subsequent pages are samples of Studio prompts. We have included examples from each of our bands spanning from 2nd to 8th grades. We hope that this sampler helps to illustrate what a Studio Set may look like, but more than that, we offer these prompts for YOU; we believe that giving ourselves space and time to explore the mathematical landscape enriches our lives as teachers of mathematics. So grab a colleague and a whiteboard or a scrap of paper, and enjoy!



Emerald Band

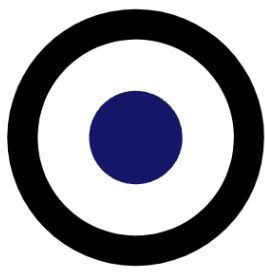
2nd-3rd Graders

| | |
|--|---|
| $12\left(\frac{1}{4}\right) + 5\left(\frac{1}{5}\right)$ | $105\left(\frac{1}{3}\right)$ |
| $27\left(\frac{1}{3}\right) - 4$ | $4/8 + 32\left(\frac{1}{2}\right) + 19$ |
| $5(7)$ $10(7)$ $15(7)$ $20(7)$ $25(7)$ | $x\left(\frac{1}{3}\right) = 10$ $y\left(\frac{1}{3}\right) = 5$ $z\left(\frac{1}{3}\right) = 20$ $k\left(\frac{1}{3}\right) = 15$ $m\left(\frac{1}{3}\right) = 50$ |
| $8(5) + \frac{1}{6}(12) + 18$ | $3(m) + 35\left(\frac{1}{5}\right) + m(12)$ |
| $6\left(\frac{1}{8}\right) + \frac{3}{4}$ | $42\left(\frac{1}{2}\right) + 30\left(\frac{1}{3}\right)$ |
| $9(63)$ | $16(4) - 4(7) + 7(3)$ |

artifacts of learner work

| | |
|--|--|
| <p> $105\left(\frac{1}{3}\right)$ $30\left(\frac{1}{3}\right) + 60\left(\frac{1}{3}\right)$ $40\left(\frac{1}{3}\right) + 9\left(\frac{1}{3}\right) + 60\left(\frac{1}{3}\right)$ $49\left(\frac{1}{3}\right) + 60\left(\frac{1}{3}\right)$ $105\left(\frac{1}{3}\right) = 35$ $3\left(\frac{1}{3}\right) = 1$ $30\left(\frac{1}{3}\right) = 10$ $60\left(\frac{1}{3}\right) = 20$ $90\left(\frac{1}{3}\right) = 30$ $99\left(\frac{1}{3}\right) = 33$ $60\left(\frac{1}{3}\right) = 2$ $105\left(\frac{1}{3}\right) = 35$ </p> | <p> $105\left(\frac{1}{3}\right)$ $30 + 5 = 35$ $3\left(\frac{1}{3}\right) = 1$ $30\left(\frac{1}{3}\right) = 10$ $60\left(\frac{1}{3}\right) = 20$ $120\left(\frac{1}{3}\right) = 40$ $90\left(\frac{1}{3}\right) = 30$ </p> |
| <p> $5(7) = 35$ $10(7) = 70$ $15(7) = 105$ $20(7) = 140$ $25(7) = 175$ </p> | <p> $9(63)$ $(10-1)63$ $10(63) - 1(63)$ $630 - 63$ 567 </p> |

Learning for the Long-View

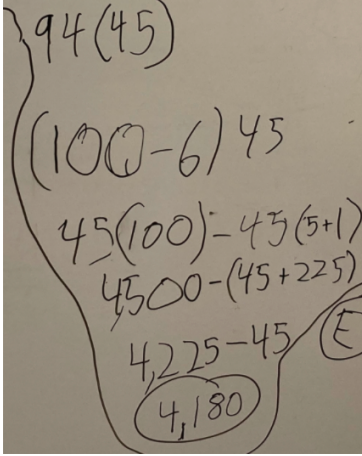
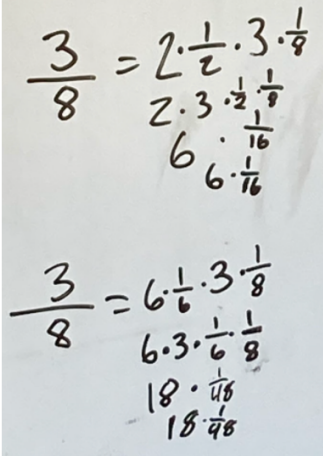
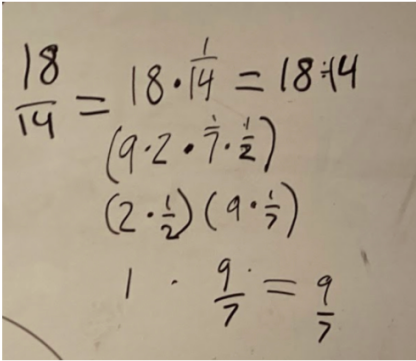
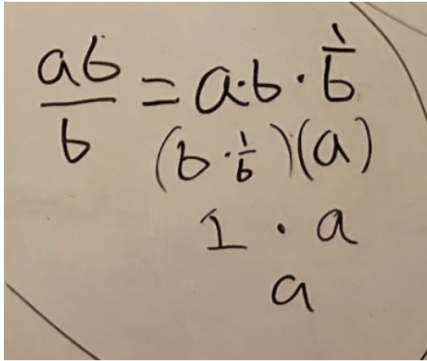


Sapphire Band

3rd-5th Graders

| Generate 3 equivalent fractions for: | |
|--------------------------------------|---------------------------------|
| $\frac{4}{7}$ | $\frac{3}{8}$ |
| Simplify: | |
| $\frac{25}{45}$ | $\frac{18}{14}$ |
| $\frac{ab}{b}$ | $\frac{36}{60}$ |
| $94(45)$ | $\frac{7}{8} \cdot \frac{4}{7}$ |
| $3\frac{2}{5} \div \frac{4}{15}$ | 64×256 |

artifacts of learner work

| | |
|---|--|
|  |  |
|  |  |



Ruby Band

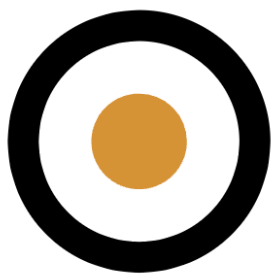
5th-7th Graders

| | |
|------------------------------|---------------------------------|
| $\frac{64}{108}$ | $\frac{a^8}{a^{12}}$ |
| $\frac{18r^4s^9}{60r^7s^3}$ | $\frac{(x+3)(x+5)}{(x+4)(x+5)}$ |
| $\frac{x^{-2}y^5}{x^3y^7}$ | $\frac{t+7}{t+5}$ |
| $\frac{15x^5 + 27x^3}{9x^4}$ | $\frac{9x+26}{3x+5}$ |
| $\frac{4x+27}{x+6}$ | $\frac{8x+20xy+24y}{4x^3y^2}$ |

artifacts of learner work

| | |
|---|--|
| <p> $\textcircled{G} \frac{15x^5 + 27x^3}{9x^4}$ $(15 \cdot x^5 + 27 \cdot x^3) \left(\frac{1}{9x^4}\right)$ $(3 \cdot 5 \cdot x^4 \cdot x + 9 \cdot 3 \cdot x^3) \left(\frac{1}{3 \cdot 3 \cdot x^4}\right)$ $\frac{6 \cdot x}{9 \cdot x^4} + \frac{3 \cdot x}{9 \cdot x^4}$ </p> <p> $\textcircled{H} \frac{15x^4 \cdot x}{9x^4}$ $\frac{9x+26}{3x+5}$ </p> | <p> $\textcircled{F} \frac{t+7}{t+5}$ $1 = \frac{t+5}{t+5} + \frac{(t+5+2)}{t+5} \left(\frac{1}{t+5}\right)$ $1 + \frac{2}{t+5}$ </p> |
| <p> $\frac{64}{108}$ $16 \cdot 4 \cdot \frac{1}{27} \cdot \frac{1}{4}$ $16 \cdot \frac{1}{27} \cdot 1$ $\frac{16}{27}$ </p> | <p> $\frac{9x+26}{3x+5}$ $\frac{9x+15}{3x+5} + \frac{11}{3x+5}$ $3 \frac{11}{3x+5}$ </p> |

Learning for the Long-View



Amber Band

7th-8th Graders

| | |
|--|--|
| $4(6) + 7(12) + 3(8)$ | $5b + 7x + 13(b + x) - 8(b + x)(\frac{1}{4})$ |
| $0.04 + \frac{1}{2} + 0.4 + \frac{3}{5} + \frac{1}{4}$ | $\frac{1}{2} + \frac{1}{8} - 3(\frac{1}{2}) + 7(\frac{3}{4}) + 5(\frac{1}{2} + \frac{1}{4})$ |
| $(\frac{2}{3}x + 7) + (\frac{3}{4}x - 9) + (\frac{5}{6}x + 3)$ | $(7x^2 - x + 3) + (x^2 + 5x + 9)$ |
| $8dp + 11p - 2p^2d + 7pd + 3pd^2$ | $101_2 + 220_3 + 1010_2$ |
| $5\sqrt{2} + \sqrt{8} + \sqrt{18} - 2\sqrt{2}$ | $\sqrt{3}(8 + 3\sqrt{2} + 2\sqrt{3}) + \sqrt{2}(4 + 5\sqrt{2} + \sqrt{3})$ |

artifacts of learner work

