Strategic Thinking that Develops Multiplication and Division Fluency

HCTM Honolulu 2019

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How could we figure out the cost of buying 4 hats?

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NUMBER FACT STRATEGIES

MULTIPLICATION

- Use tens (5s)
- Make generalizations (1s and 0s)
- Use doubles (2s, 4s, and 8s)
- Build up/down (9s and 6s)

DIVISION

- Think multiplication

TEACHING SEQUENCE

- Introduce
- Reinforce
- Practice
- Extend

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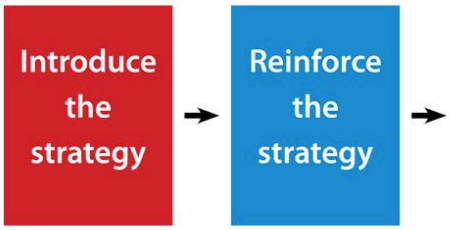
Sequence for Teaching Skills

This stage involves the use of **concrete** materials and **pictorial** representations to model the strategy.

At this first stage, ORIGO resources also include **contextual situations** to provide meaning.

Sequence for Teaching Skills



This stage provides the opportunity for the students to **assimilate** and **internalize** the strategy.

It is an additional link that **connects** the models of the introductory stage to the symbols of the practice stage.

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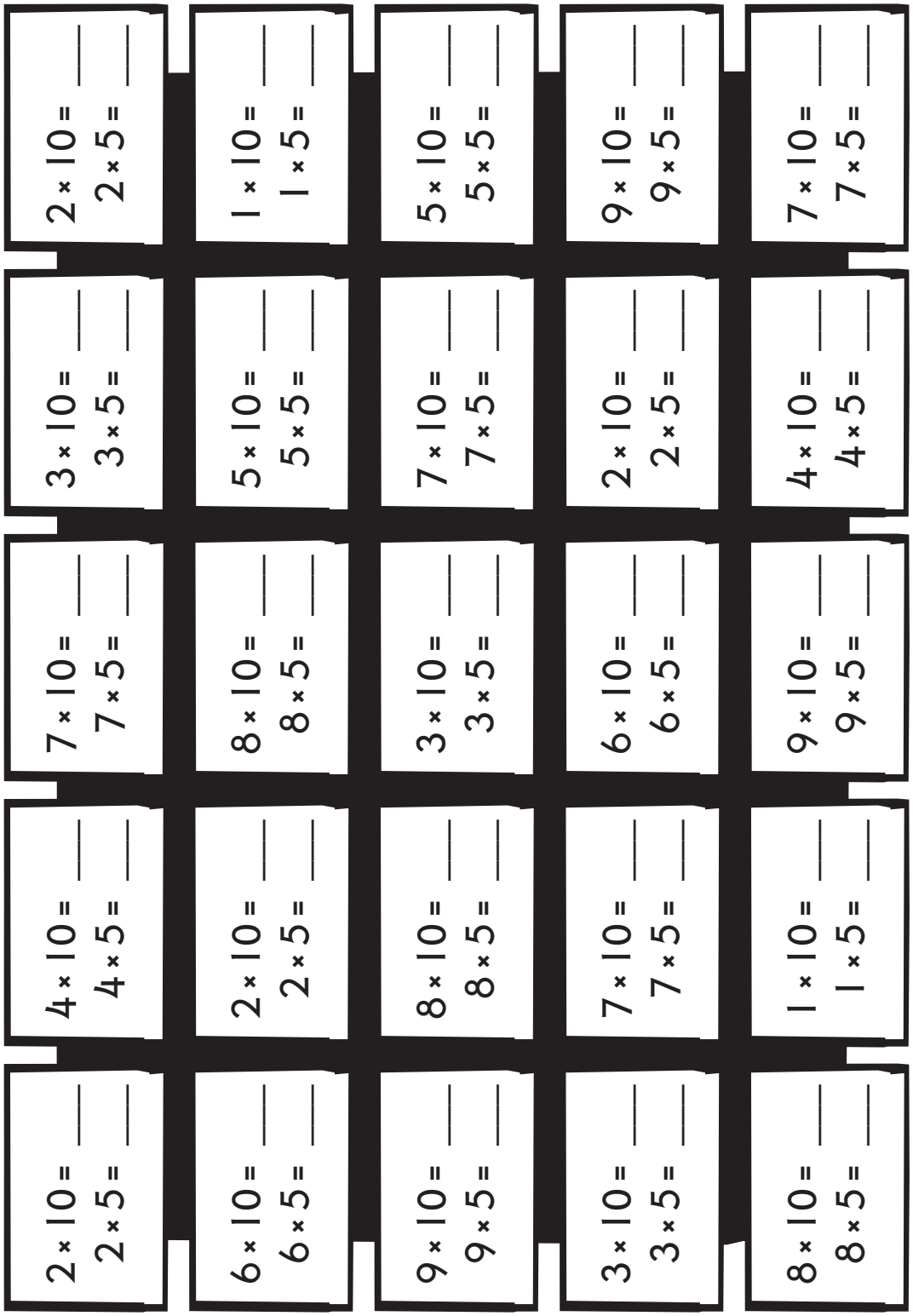
REINFORCE: Use Tens

Tens Or Fives



Cube A: 6, 5, 4, 3, 2, 1

Cube B: 9, 9, 8, 8, 7, 7

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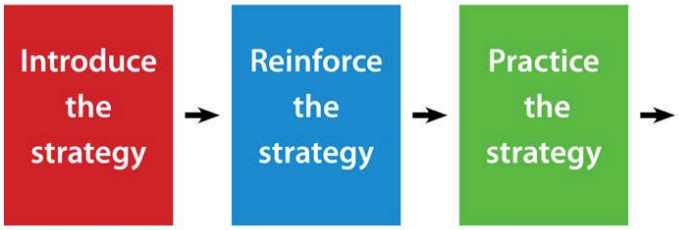
Sequence for Teaching Skills



This stage aims to develop **accuracy** and increase **speed** of recall.

In this stage, a range of different types of written and oral activities is used.

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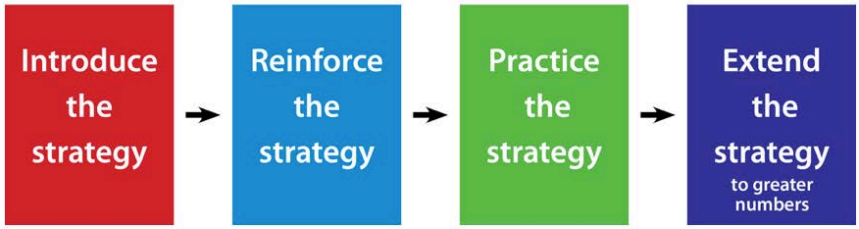
Sequence for Teaching Skills



This stage moves the strategy to examples **beyond** the number fact range, including computation with **decimals**.

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Times Tussle

20	50	25	50	10	30
70	30	10	90	45	80
35	40	25	40	15	45
80	15	50	100	90	35
45	25	20	40	50	100
45	25	30	20	30	15
70	60	35	60	20	40

Burnett, J. & Tickle, B. (2007). *Fundamentals: Purple Level*, page 28. ORIGO Education.

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Nice and Easy

90 × 3	90 × 4	90 × 6	90 × 7	90 × 8	90 × 9
70 × 3	70 × 4	70 × 6	70 × 7	70 × 8	70 × 9
50 × 3	50 × 4	50 × 6	50 × 7	50 × 8	50 × 9
30 × 3	30 × 4	30 × 6	30 × 7	30 × 8	30 × 9

Cube A: 15, 15, 25, 35, 45, 45

Cube B: 6, 8, 12, 14, 16, 18

Burnett, J. & Tickle, B. (2007). *Fundamentals: Red Level*, page 22. ORIGO Education.

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Nice and Easy Too!

270	360	540	630	720	810
210	280	420	490	560	630
150	200	300	350	400	450
90	120	180	210	240	270

Burnett, J. & Tickle, B. (2007). *Fundamentals: Red Level*, page 23. ORIGO Education.

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MULTIPLICATION CHART

×	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

- ☐ Use tens (5s)
- ☐ Make generalizations (0s, 1s)
- ☐ Use doubles (2s, 4s, 8s)
- ☐ Build up/down (9s, 6s)

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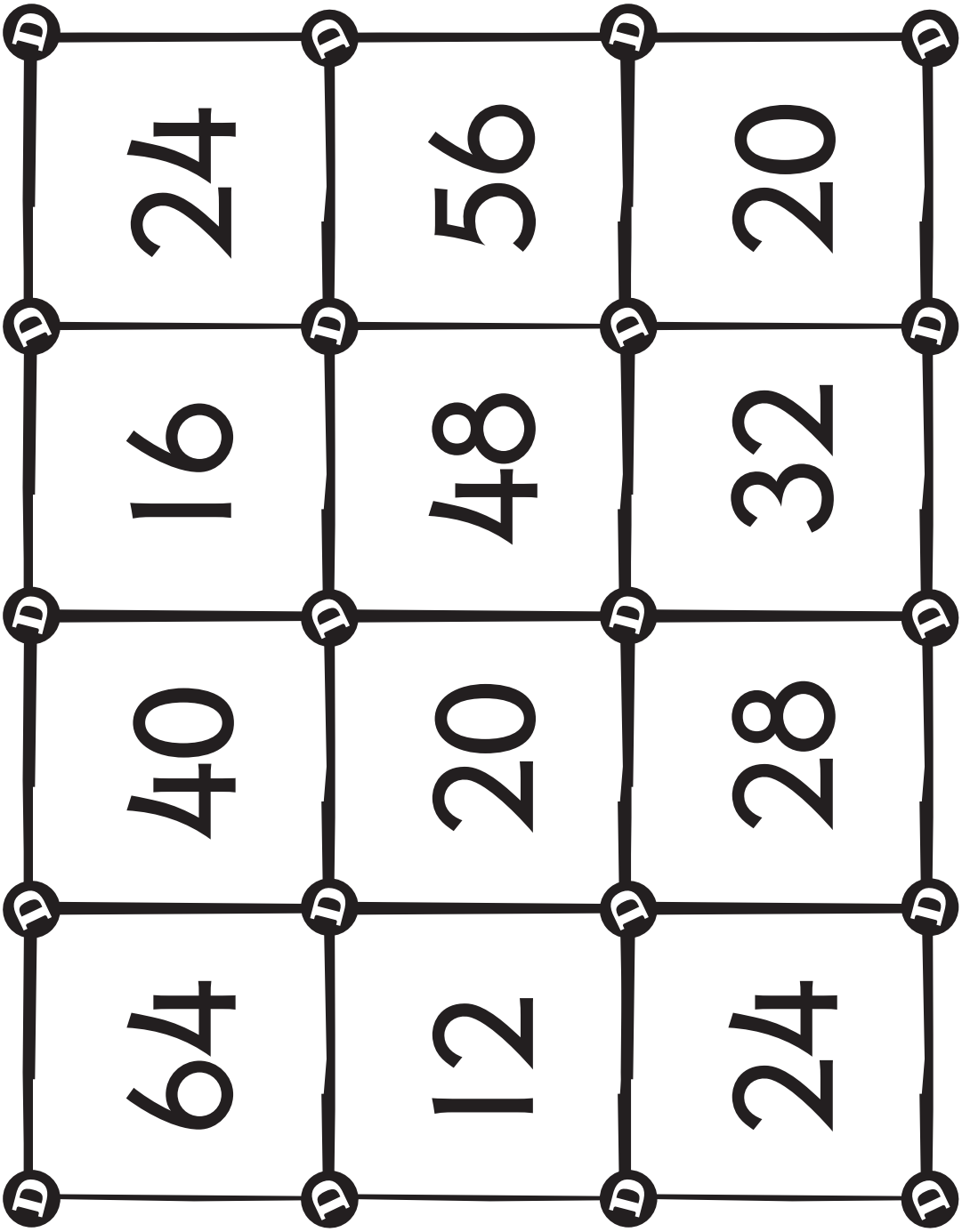
REINFORCE: Use Doubles

Do the Ds



Cube A: 3, 4, 5, 6, 7, 8

Cube B: DD, DD, DD, DDD, DDD, DDD

Burnett, J. & Tickle, B. (2007). *Fundamentals: Purple Level*, page 54. ORIGO Education.

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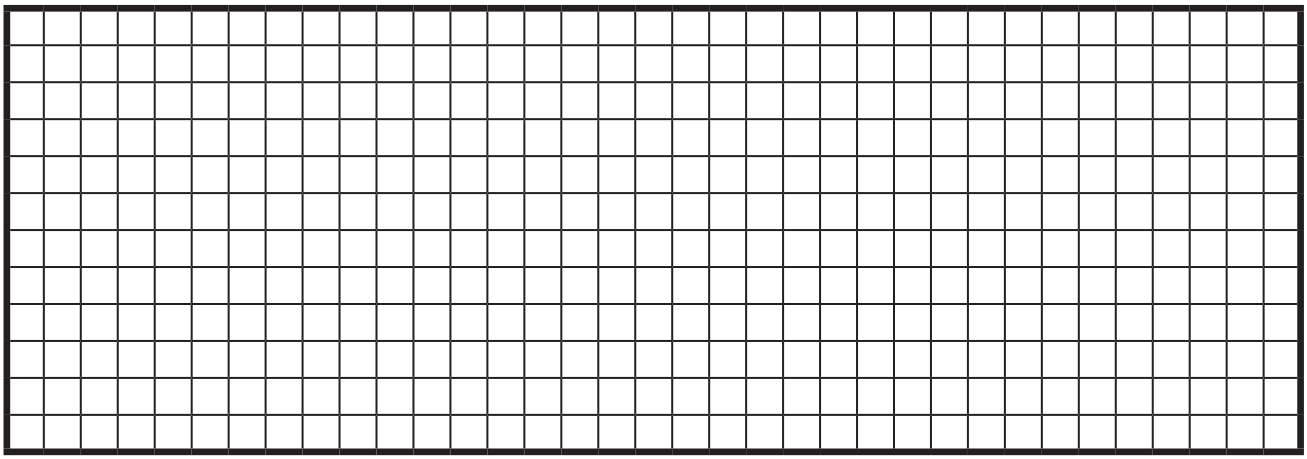

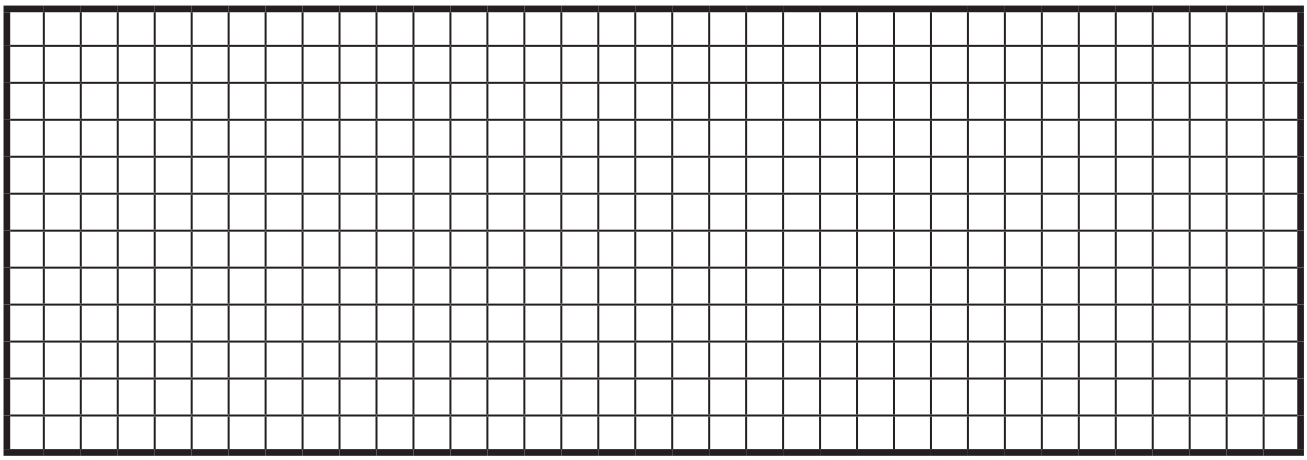

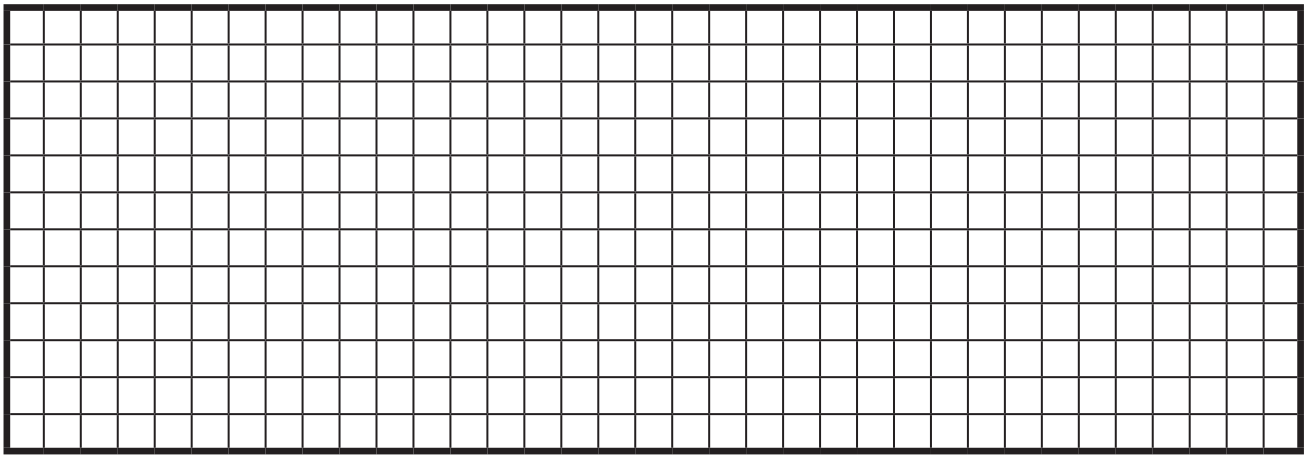

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