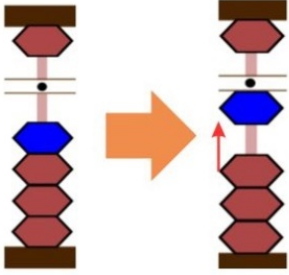
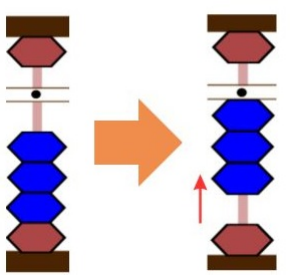
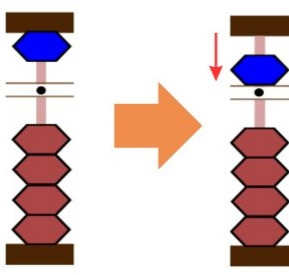
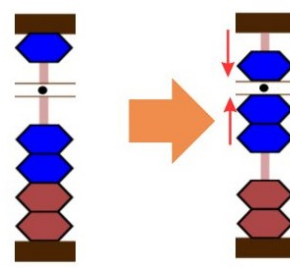
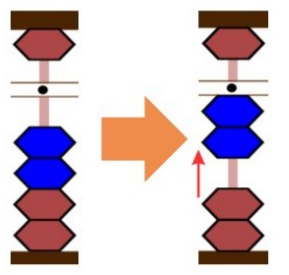
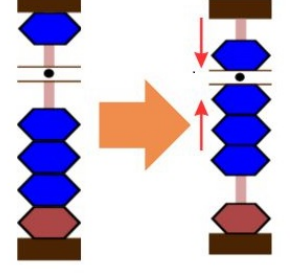
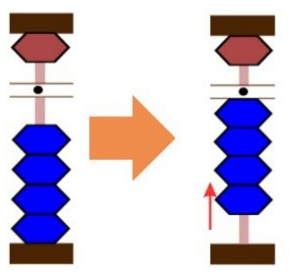
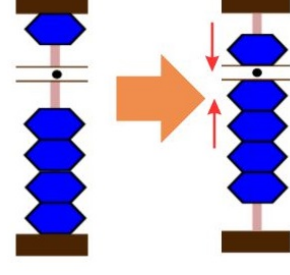


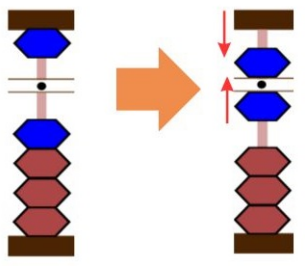
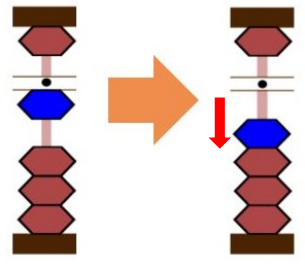
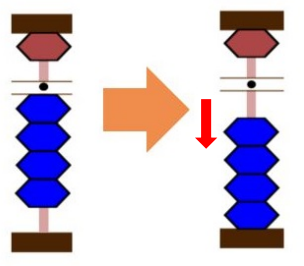
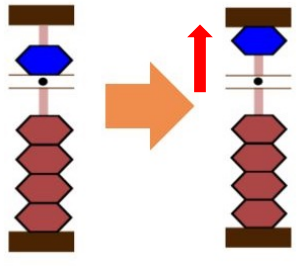
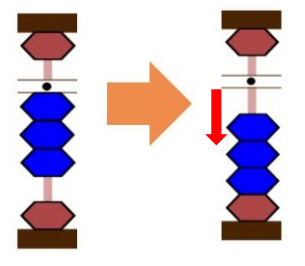
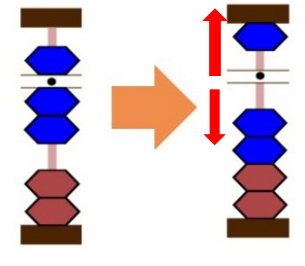
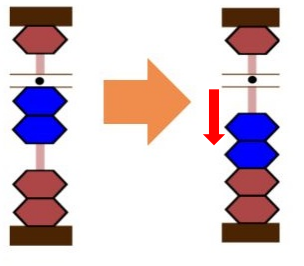
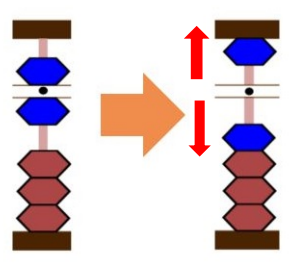
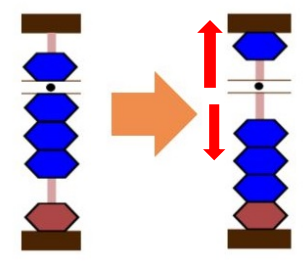
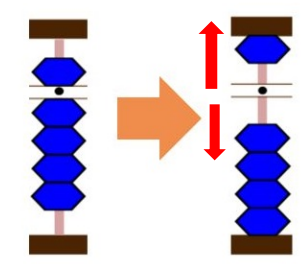
## Lesson 3

### Manipulating beads with pointer and thumb

Setting the rule for adding and subtracting beads makes abacus operation smoother. In each problem, choose A, B, or C below to add or subtract the bead(s). When deducting both upper and lower beads, make sure to deduct the lower beads first, then deduct the upper bead. The arrow indicates the operation. For instance, the arrows pointing towards the bar indicates addition. The arrows pointing away from the bar indicates subtraction.

- A. Thumb: for adding lower bead(s)
- B. Thumb and Pointer Together: for adding a number that involves both upper and lower bead(s)
- C. Pointer: for adding and subtracting the upper bead, and subtracting lower bead(s)

<p>①</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">+ 1</div> 	<p>②</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">+ 3</div> 	<p>③</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">+ 5</div> 	<p>④</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">+ 7</div> 
<p>⑤</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">+ 2</div> 	<p>⑥</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">+ 8</div> 	<p>⑦</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">+ 4</div> 	<p>⑧</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">+ 9</div> 

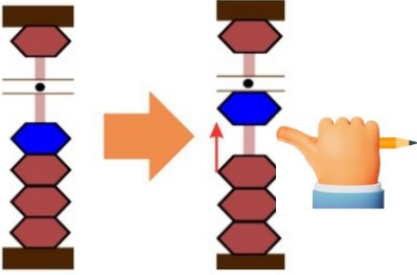
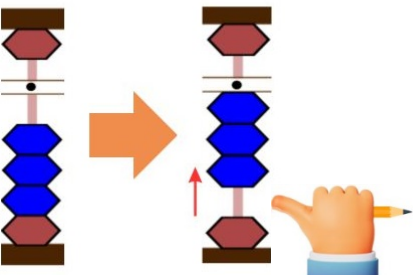
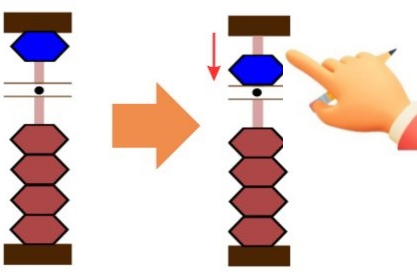
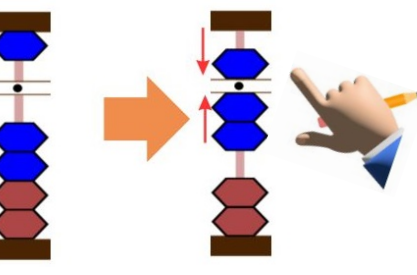
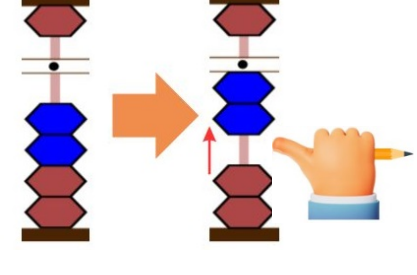
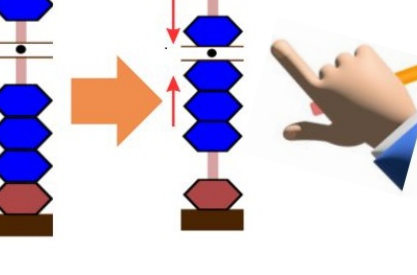
<p>⑨</p> <p>+ 6</p> 	<p>⑩</p> <p>1 - 1</p> 	<p>⑪</p> <p>4 - 4</p> 	<p>⑫</p> <p>5 - 5</p> 
<p>⑬</p> <p>3 - 3</p> 	<p>⑭</p> <p>7 - 7</p> 	<p>⑮</p> <p>2 - 2</p> 	<p>⑯</p> <p>6 - 6</p> 
<p>⑰</p> <p>8 - 8</p> 	<p>⑱</p> <p>9 - 9</p> 		

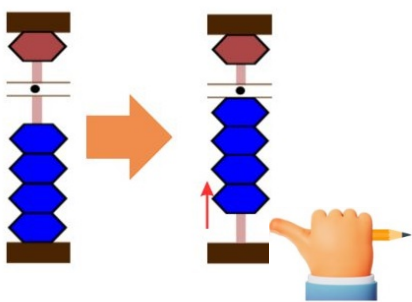
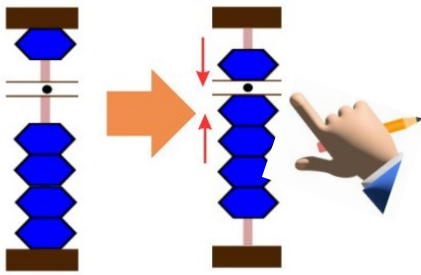
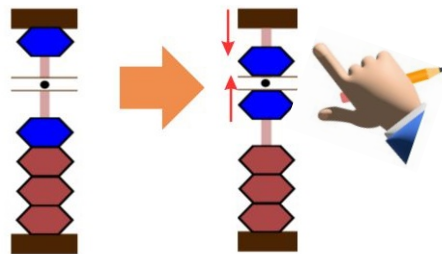
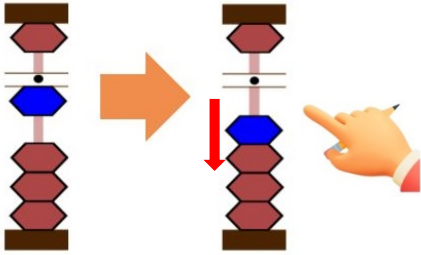
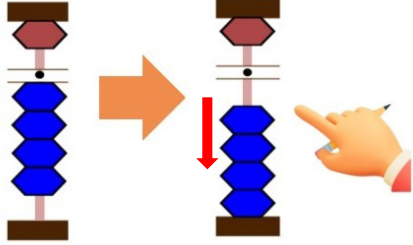
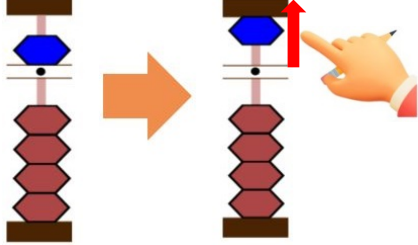
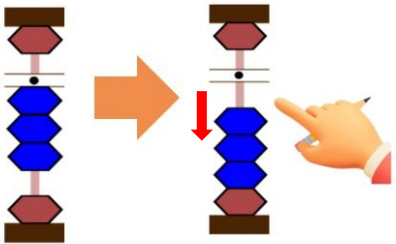
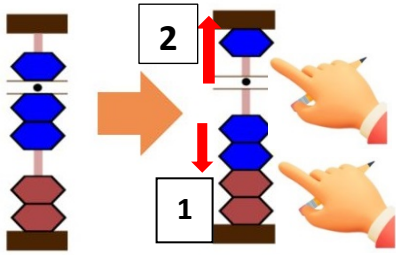
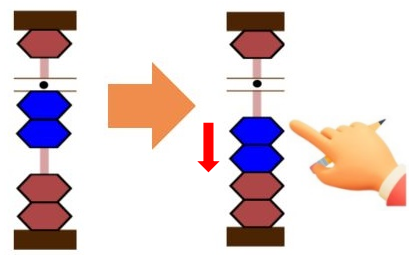


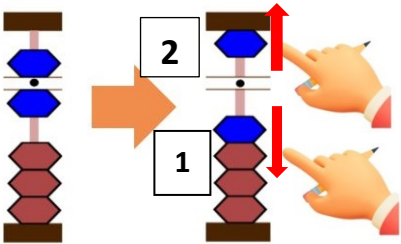
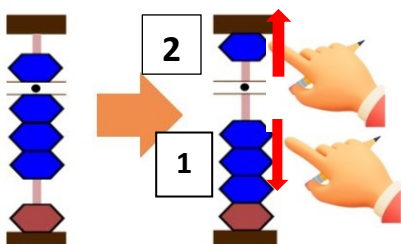
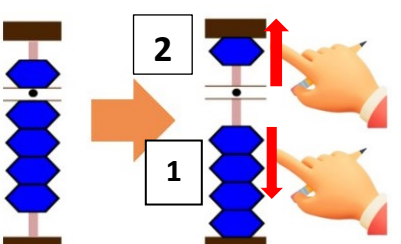
## Answers : Lesson 3

#	1	2	3	4	5	6	7	8	9
	A	A	C	B	A	B	A	B	B

#	10	11	12	13	14	15	16	17	18
	C	C	C	C	C	C	C	C	C

<p>①</p> <p>+1</p> 	<p>②</p> <p>+3</p> 	<p>③</p> <p>+5</p> 
<p>[A] Push 1 bead up to the bar.</p>	<p>[A] Push 3 beads up to the bar.</p>	<p>[C] Push the upper bead down to the bar.</p>
<p>④</p> <p>+7</p> 	<p>⑤</p> <p>+2</p> 	<p>⑥</p> <p>+8</p> 
<p>[B] Push both upper and lower two beads to the bar.</p>	<p>[A] Push 2 beads up to the bar.</p>	<p>[B] Push both upper and lower three beads to the bar.</p>

<p>⑦</p> <p>+ 4</p> 	<p>⑧</p> <p>+ 9</p> 	<p>⑨</p> <p>+ 6</p> 
<p>[A] Push 4 beads to the bar.</p>	<p>[B] Push both upper and 4 lower beads to the bar.</p>	<p>[B] Push both upper and 1 lower bead to the bar.</p>
<p>⑩</p> <p>1 - 1</p> 	<p>⑪</p> <p>4 - 4</p> 	<p>⑫</p> <p>5 - 5</p> 
<p>[C] Push 1 lower bead away from the bar.</p>	<p>[C] Push 4 lower beads away from the bar.</p>	<p>[C] Push the upper bead away from the bar.</p>
<p>⑬</p> <p>3 - 3</p> 	<p>⑭</p> <p>7 - 7</p> 	<p>⑮</p> <p>2 - 2</p> 
<p>[C] Push 3 lower beads away from the bar.</p>	<p>[C] Push 2 lower beads away from the bar first, then push the upper bead away from the bar.</p>	<p>[C] Push 2 lower beads away from the bar.</p>

<p>①⑥</p> <p>6 - 6</p> 	<p>①⑦</p> <p>8 - 8</p> 	<p>①⑧</p> <p>9 - 9</p> 
<p>[C] Push 1 lower bead away from the bar first, then push the upper bead away from the bar.</p>	<p>[C] Push 3 lower beads away from the bar first, then push the upper bead away from the bar.</p>	<p>[C] Push 4 lower beads away from the bar first, then push the upper bead away from the bar.</p>

\*For problems #14,16,17,and 18, you can also use your pointer and thumb simultaneously to subtract those numbers.