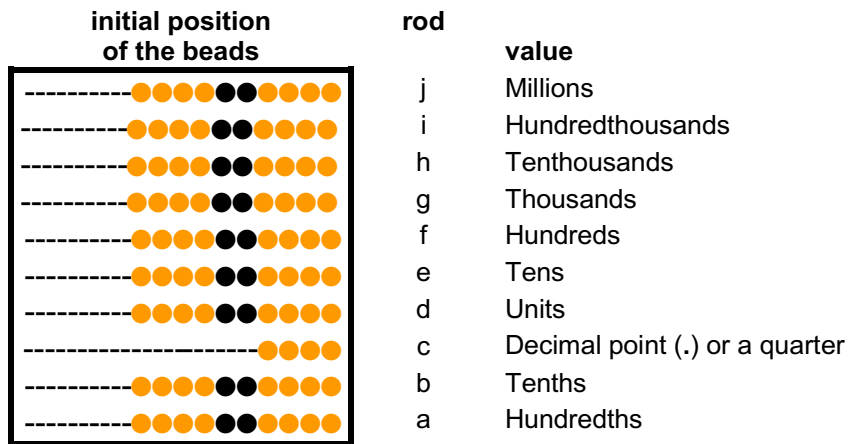
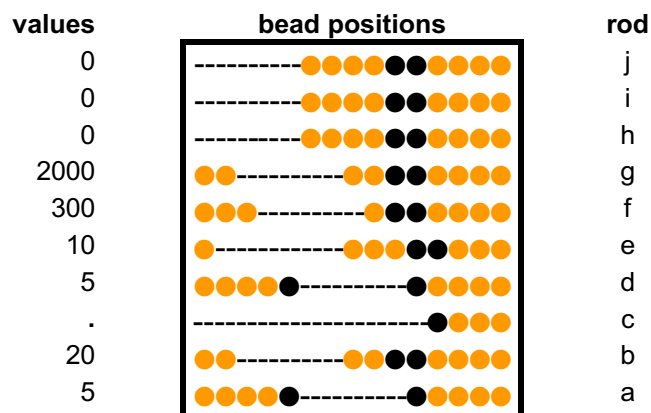


## Manual for the Russian abacus „STSCHOTY“ (Part 1: with examples of addition and subtraction)

The Stschoty is operated by moving the beads horizontally. Before doing a calculation all beads have to be moved to their initial position – the right end of the rods. During the calculation the beads are set by moving them to the left side. Most of the rods have ten beads but in the lower part of the frame are one or two rods with four beads only. On the one hand their function is to mark 1/4 value of Rubels, weight or measures. And on the other hand the rod is for marking the decimal point. On the rods with ten beads normally the fifth and the sixth beads are colored for easier recognition of groups of five beads.

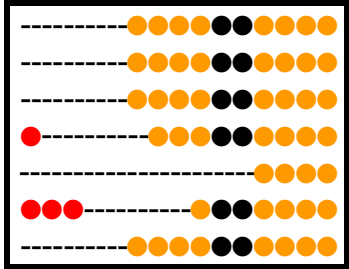
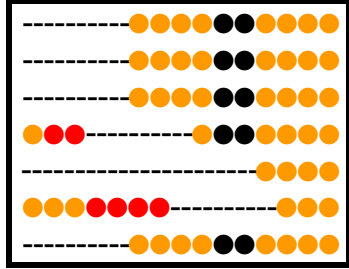
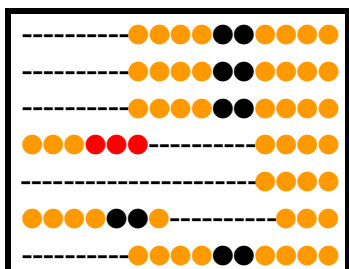
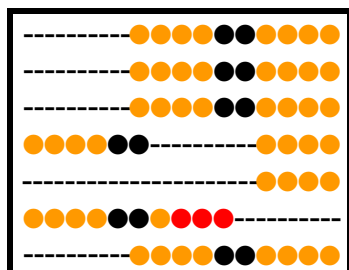


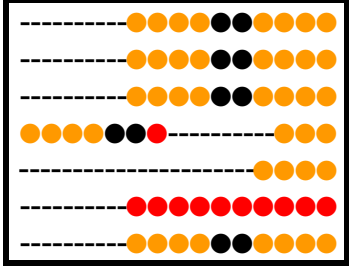
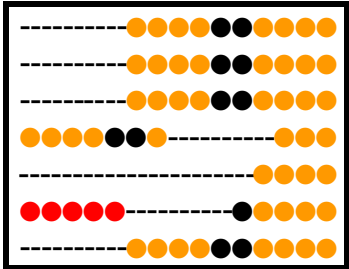
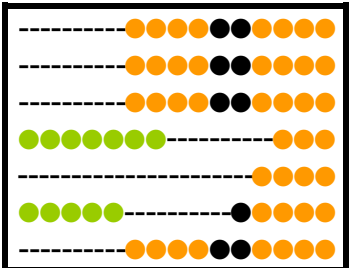
### Example: display of the number 2,315.25



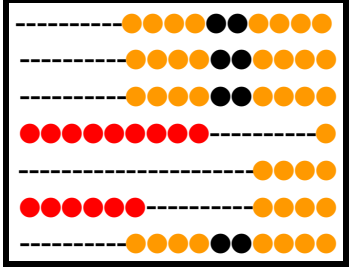
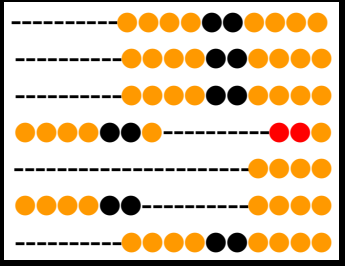
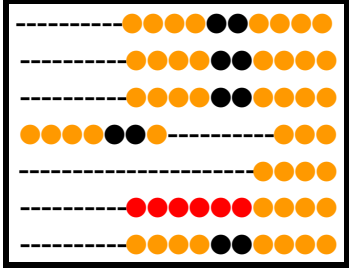
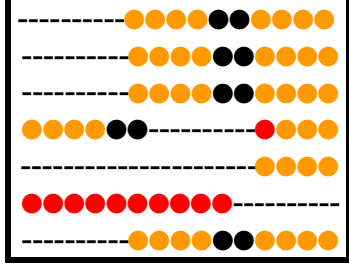
## Examples of calculation

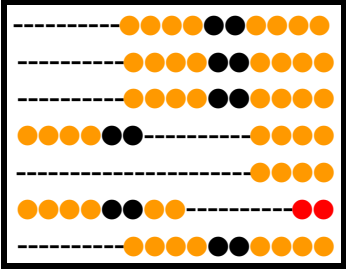
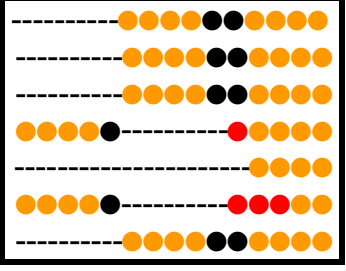
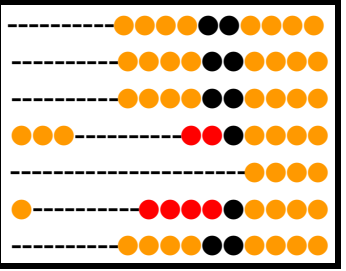
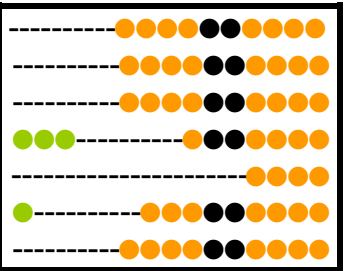
a) addition:  $1.30 + 2.40 + 3.80 = 7.50$

operation	bead movement	display on Stschooty
1.30	<p><b>rod d:</b> (ones) one bead to the left,  <b>rod b:</b> (tens) three beads to the left.</p>	 <p>rod g f e d c b a</p>
+ 2.40	<p><b>rod d:</b> two beads to the left,  <b>rod b:</b> four beads to the left.                      Intermediate result = 3.70</p>	 <p>rod g f e d c b a</p>
+ 3.80	<p><b>rod d:</b> three beads to the left.</p>	 <p>rod g f e d c b a</p>
	<p>On <b>rod b</b> eight beads have to be moved to the left.</p> <p><b>Problem:</b> At the right side of <b>rod b</b> are three remaining beads only.  <b>Solution:</b> clearing by making an equivalent</p> <p><b>rod b:</b> three beads to the left.                      Now the rod is filled up with ten 1/10 beads and the equivalent value is „one“.</p>	 <p>rod g f e d c b a</p>

operation	bead movement	display on Stschooty
	<p>In doing this, <b>rod b</b> is cancelled and transferred to <b>rod d</b> because ten lower beads on <b>rod b</b> equals one bead on <b>rod d</b>.</p> <p><b>rod d</b>: one bead to the left,</p> <p><b>rod b</b>: ten beads back to the right.</p>	 <p style="text-align: right;">rod g f e d c b a</p>
	<p><b>rod b</b>: Now the still missing five beads can be moved to the left.</p>	 <p style="text-align: right;">rod g f e d c b a</p>
<p>= 7.50</p>	<p><b>final result</b></p> <p>seven beads on <b>rod d</b> and</p> <p>six beads on <b>rod b</b>.</p>	 <p style="text-align: right;">rod g f e d c b a</p>

**b) subtraction:  $9.60 - 2.80 - 1.30 - 2.40 = 3.10$**

operation	bead movement	display on Stschooty
9.60	<p><b>rod d:</b> nine beads to the left,  <b>rod b:</b> six beads to the left.</p>	 <p style="text-align: right;">rod g f e d c b a</p>
- 2.80	<p><b>rod d:</b> two beads to the right.</p>	 <p style="text-align: right;">rod g f e d c b a</p>
	<p>On <b>rod b:</b> eight beads have to be moved to the right.  <b>problem:</b> At the left side of <b>rod b</b> are six beads remaining only but we need eight beads.  <b>solution:</b> clearing by making equivalent  <b>rod b:</b> six beads to the right.</p>	 <p style="text-align: right;">rod g f e d c b a</p>
	<p>For compensation of the missing two 1/10 beads on <b>rod b</b>, one bead of <b>rod d</b> is converted into ten beads of <b>rod b</b>, because one bead on <b>rod d</b> equals ten lower beads on <b>rod b</b>.  <b>rod d:</b> one bead to the right,  <b>rod b:</b> ten beads to the left.</p>	 <p style="text-align: right;">rod g f e d c b a</p>

operation	bead movement	display on Stschooty
	<p><b>rod b:</b> two beads to the right.</p> <p>Now at the left side six beads on <b>rod d</b> and eight beads on <b>rod b</b> are remaining.</p> <p>Intermediate result = 6.80</p>	 <p>The Stschooty abacus shows rods labeled a through g. Rod a has 10 orange beads. Rod b has 8 orange beads and 2 black beads. Rod c has 4 orange beads. Rod d has 6 orange beads. Rods e, f, and g each have 10 orange beads. A red bead is on rod b.</p>
<p><b>- 1.30</b></p>	<p><b>rod d:</b> one bead to the right,</p> <p><b>rod b:</b> three beads to the right.</p> <p>Now at the left side five beads on <b>rod d</b> and five beads on <b>rod b</b> are remaining.</p> <p>Intermediate result = 5.50</p>	 <p>The Stschooty abacus shows rods labeled a through g. Rod a has 10 orange beads. Rod b has 5 orange beads and 3 black beads. Rod c has 4 orange beads. Rod d has 5 orange beads. Rods e, f, and g each have 10 orange beads. A red bead is on rod b.</p>
<p><b>- 2.40</b></p>	<p><b>rod d:</b> two beads to the right,</p> <p><b>rod b:</b> four beads to the right.</p>	 <p>The Stschooty abacus shows rods labeled a through g. Rod a has 10 orange beads. Rod b has 1 orange bead and 4 black beads. Rod c has 4 orange beads. Rod d has 3 orange beads. Rods e, f, and g each have 10 orange beads. A red bead is on rod b.</p>
<p><b>= 3.10</b></p>	<p><b>final result</b></p> <p>three beads on <b>rod d</b> and one bead on <b>rod b</b>.</p>	 <p>The Stschooty abacus shows rods labeled a through g. Rod a has 10 orange beads. Rod b has 1 green bead and 1 black bead. Rod c has 4 orange beads. Rod d has 3 green beads. Rods e, f, and g each have 10 orange beads.</p>