

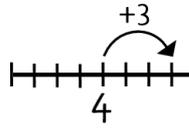
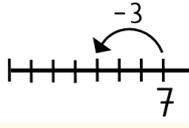
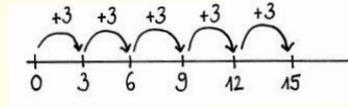
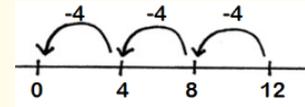
ZSL
Zentrum für Schulqualität
und Lehrerbildung
Baden-Württemberg

Operationsverständnis

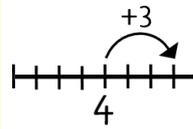
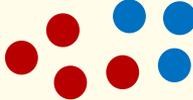
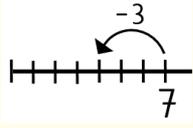
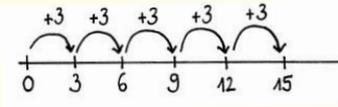
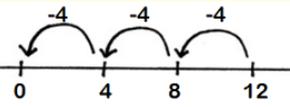
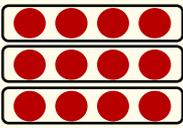
Mathematische Basiskompetenzen Klasse 1-4



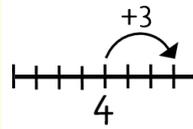
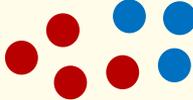
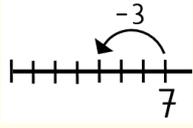
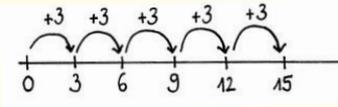
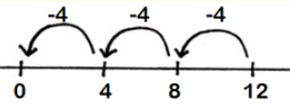
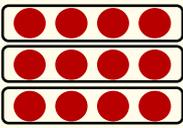
Zentrale Grundvorstellungen

Operationsverständnis	Flexible Grundvorstellungen
<p>Addition $4 + 3$</p>  <p>A number line with 11 tick marks. The number 4 is written below the 4th tick mark. A curved arrow starts at the 4th tick mark and points to the 7th tick mark, with '+3' written above the arrow.</p>	
<p>Subtraktion $7 - 3$</p>  <p>A number line with 11 tick marks. The number 7 is written below the 7th tick mark. A curved arrow starts at the 7th tick mark and points to the 4th tick mark, with '-3' written above the arrow.</p>	
<p>Multiplikation $5 \cdot 3$</p>  <p>A number line with 16 tick marks. The numbers 0, 3, 6, 9, 12, and 15 are written below the corresponding tick marks. Five curved arrows are shown, each starting from a tick mark and pointing to the next one to the right. The arrows start at 0, 3, 6, 9, and 12, and end at 3, 6, 9, 12, and 15. Each arrow has '+3' written above it.</p>	
<p>Division $12 : 4$</p>  <p>A number line with 13 tick marks. The numbers 0, 4, 8, and 12 are written below the corresponding tick marks. Three curved arrows are shown, each starting from a tick mark and pointing to the next one to the right. The arrows start at 0, 4, and 8, and end at 4, 8, and 12. Each arrow has '-4' written above it.</p>	

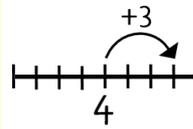
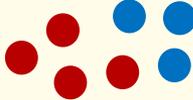
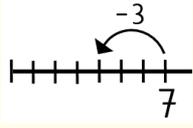
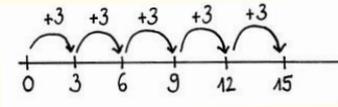
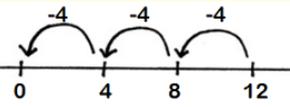
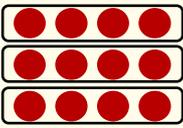
Zentrale Grundvorstellungen

Operationsverständnis	Flexible Grundvorstellungen
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<p>Subtraktion $7 - 3$</p>  	
<p>Multiplikation $5 \cdot 3$</p>  	
<p>Division $12 : 4$</p>  	

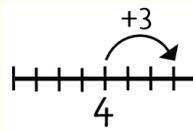
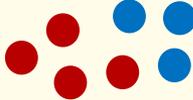
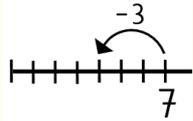
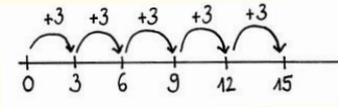
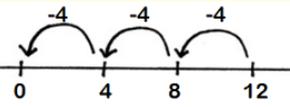
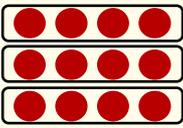
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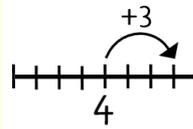
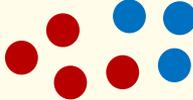
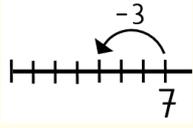
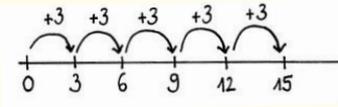
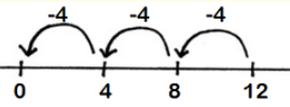
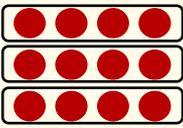
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Operationsverständnis	Flexible Grundvorstellungen
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<p>Subtraktion $7 - 3$</p>  	
<p>Multiplikation $5 \cdot 3$</p>  	
<p>Division $12 : 4$</p>  	

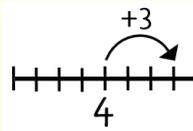
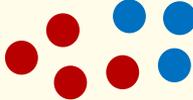
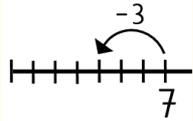
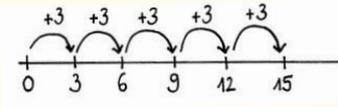
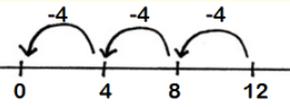
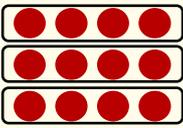
Zentrale Grundvorstellungen

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<p>Subtraktion $7 - 3$</p>  	<p>weniger, abnehmen, verlieren, wegnehmen, reduzieren, übrig, ausgeben, abziehen usw.</p>
<p>Multiplikation $5 \cdot 3$</p>  	
<p>Division $12 : 4$</p>  	

Zentrale Grundvorstellungen

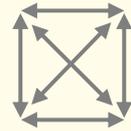
Operationsverständnis	Flexible Grundvorstellungen
<p>Addition $4 + 3$</p>  	<p>mehr, zusammen, insgesamt, dazu, zunehmen, ansteigen, vermehrten, hinzufügen usw.</p>
<p>Subtraktion $7 - 3$</p>  	<p>weniger, abnehmen, verlieren, wegnehmen, reduzieren, übrig, ausgeben, abziehen usw.</p>
<p>Multiplikation $5 \cdot 3$</p>  	<p>je, mal so viel, vervielfachen, verdoppeln usw.</p>
<p>Division $12 : 4$</p>  	

Zentrale Grundvorstellungen

Operationsverständnis	Flexible Grundvorstellungen
<p>Addition $4 + 3$</p>  	<p>mehr, zusammen, insgesamt, dazu, zunehmen, ansteigen, vermehrten, hinzufügen usw.</p>
<p>Subtraktion $7 - 3$</p>  	<p>weniger, abnehmen, verlieren, wegnehmen, reduzieren, übrig, ausgeben, abziehen usw.</p>
<p>Multiplikation $5 \cdot 3$</p>  	<p>je, mal so viel, vervielfachen, verdoppeln usw.</p>
<p>Division $12 : 4$</p>  	<p>teilen, aufteilen, verteilen, halbieren usw.</p>

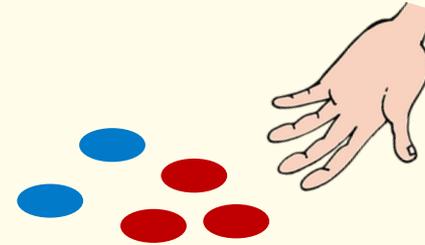
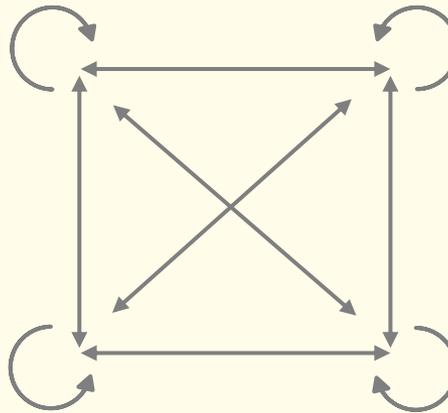
Diagnose- und Förderaufgaben

Darstellungswechsel

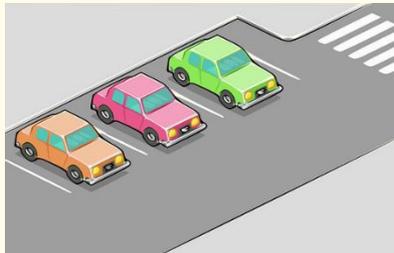


$$3 + 2 = 5$$

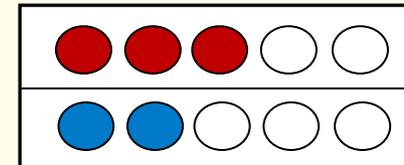
Symbol



Handlung



Geschichte

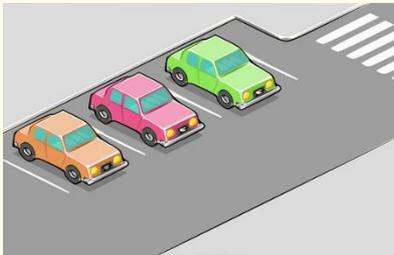


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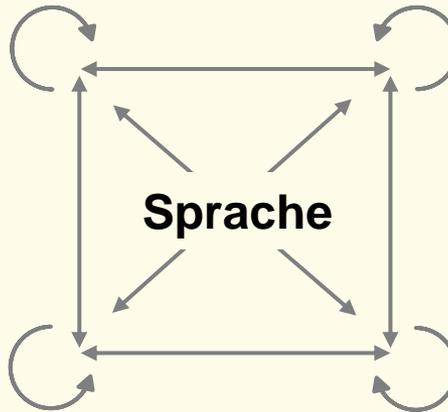
Diagnose- und Förderaufgaben

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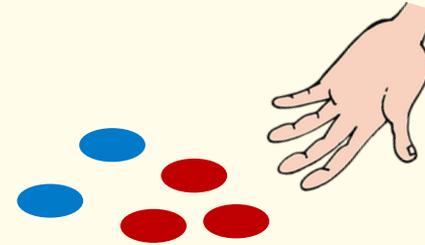
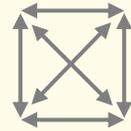
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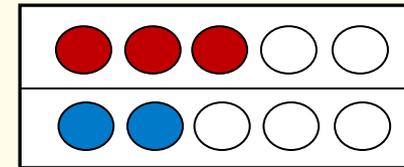
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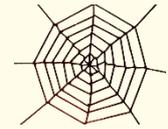
Darstellungswechsel



Handlung



Bild



Diagnose- und Förderaufgaben

13

5 8

$$\begin{aligned} 5 + 8 &= 13 \\ 8 + 5 &= 13 \\ 13 - 5 &= 8 \\ 13 - 8 &= 5 \end{aligned}$$

Aufgabenfamilien

18

3 6

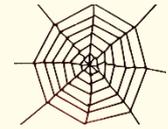
$$\begin{aligned} 3 \cdot 6 &= 18 \\ 6 \cdot 3 &= 18 \\ 18 : 3 &= 6 \\ 18 : 6 &= 3 \end{aligned}$$

Entdecker-Päckchen

Was fällt dir auf?
Warum ist das so?

Rechne aus. Setze fort.

$$\begin{aligned} 8 + 1 &= \underline{\quad} \\ 7 + 2 &= \underline{\quad} \\ 6 + 3 &= \underline{\quad} \\ &\dots \end{aligned}$$



Diagnose- und Förderaufgaben

Aufgabenfamilien

13

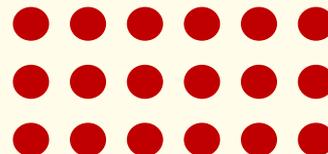
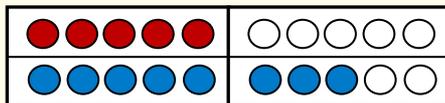
5 8

$5 + 8 = 13$

$8 + 5 = 13$

$13 - 5 = 8$

$13 - 8 = 5$



18

3 6

$3 \cdot 6 = 18$

$6 \cdot 3 = 18$

$18 : 3 = 6$

$18 : 6 = 3$

Entdecker-Päckchen

Was fällt dir auf?
Warum ist das so?

Rechne aus. Setze fort.

$8 + 1 = \underline{\quad}$

$7 + 2 = \underline{\quad}$

$6 + 3 = \underline{\quad}$

...



Diagnose- und Förderaufgaben

Weitere Anregungen und Ideen:

Mathematik

Fachliches Lehrerwissen ✓

Diagnose Basiskompetenzen ✓

Förderung Basiskompetenzen ✓

[ZSL - Grundschule \(zsl-bw.de\)](http://zsl-bw.de)



Verwendete und weiterführende Literatur

- Wartha, S. / Schulz, A.: Aufbau von Grundvorstellungen (nicht nur) bei besonderen Schwierigkeiten im Rechnen

[Handreichung_WarthaSchulz.pdf \(sinus-an-grundschulen.de\)](#)

- DZLM / PIKAS: Operationsverständnis aufbauen

<https://pikas.dzlm.de/node/1071>

- Kaufmann, S. / Wessolowski, S.: Rechenstörungen. Diagnose- und Förderbausteine. Kallmeyer 2021

https://www.researchgate.net/publication/315792739_Entwicklung_eines_tragfähigen_Stellenwertverständnisses