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<b>12</b>	<b>12 ½</b>	<b>13</b>
11 ½	<b>11</b>	10 ½
<b>Start</b>	½	<b>1</b>

# Halfplay ½

Playing, mathematisizing and problem-solving with simple rational numbers

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Meyer, S. (2009). *Halfplay 1/2*. [Internet]. Verfügbar unter: <http://www.interview.hfh.ch/page016.htm> [2016-09-12]

# Halfplay ½ - Advices

## Introduction

A game like Halfplay is thought to build relations to rational numbers in a human way. It is obvious that natural numbers ( $N$ ) take an important part in many games. Why *rational numbers* ( $Q$ ) should not be integrated too? Skill, fortune, frankness, probability, ease, social relations and sometimes conflicts are characteristics of playing. The Halfplay creates such experiences. These experiences offer fundamentals and materials for effective processes of mathematisizing and realistic problem solving with rational numbers. You come to like symbolic, mental and social relations between rules and the meanings of actions.

## Rules of the game

One form of Halfplay ½ is built similar to Chutes and Ladders. Another form is linear with improper or mixed fractions. You play at dice and move a figure. Fix the rules before. *One point of the dice is equal to ½*. Make short work of this rule.

Shuffle the “cards of fortune” and put them face down on a pile. If you arrive on a blue (gray) field, take the card of fortune on the top and follow the rule.

Enlarge the playground-copy on A3-size or others.

## Didactical Advices

Talk with children and be aware if Halfplay is something meaningful for them. Ask about the interest and the insights of the game. Try to check the level of comprehension of the rational numbers when children are playing and talking. Probably children might be motivated to create a more sophisticated (or easier) game. Perhaps they want to change the cover and the order of the fields. Let them do it.

These are important bricks of the relations with the content. There are infinite rational numbers and variations. Experience and theory prove that “every beginning is difficult”, specially with rational numbers. The Halfplay wants to give to the beginnings and the exercises a natural educational fundament and a level-oriented didactical conversation. Halfplay connects early experiences of dividing into halves with playing with halves of numbers. Distinguish consciously the playtime from the math-lessons! Confusions damage the playtime as well as the seriousness of the mathematical conversations.

Observe the children during the playtime. Listen to their questions, conflicts or standpoints. Try to be a discrete coach, if needed a referee. Note freely. This can serve very effectively for future math-lessons.

Select *with the children* which topics of the game has to be mathematisized in the math-lesson. Children might reinvent new tasks or develop insight and new arithmetic rules, for example: one point of the dice is equal to  $1\frac{1}{2}$  or to  $2\frac{1}{2}$ . Or they invent “Thirdplay”. Let them solve their real problem-situations with the methods of mathematisizing and problem-solving. They reconstruct experiences using symbol representations, reasoning, conjecturing and proving.

## Copyright

Be free to use and change Halfplay as an educational or scientific object. - Respect the copyright if you have commercial interests with Halfplay or similar games.

Stefan Meyer, HfH, 24.04.2009

# Halfplay $\frac{1}{2}$ linear, improper fractions (part 1)

$\frac{60}{2}$	$\frac{61}{2}$	$\frac{62}{2}$	$\frac{63}{2}$	$\frac{64}{2}$	$\frac{65}{2}$	$\frac{66}{2}$	$\frac{67}{2}$	$\frac{68}{2}$	$\frac{69}{2}$
$\frac{50}{2}$	$\frac{51}{2}$	$\frac{52}{2}$	$\frac{53}{2}$	$\frac{54}{2}$	$\frac{55}{2}$	$\frac{56}{2}$	$\frac{57}{2}$	$\frac{58}{2}$	$\frac{59}{2}$
$\frac{40}{2}$	$\frac{41}{2}$	$\frac{42}{2}$	$\frac{43}{2}$	$\frac{44}{2}$	$\frac{45}{2}$	$\frac{46}{2}$	$\frac{47}{2}$	$\frac{48}{2}$	$\frac{49}{2}$
$\frac{30}{2}$	$\frac{31}{2}$	$\frac{32}{2}$	$\frac{33}{2}$	$\frac{34}{2}$	$\frac{35}{2}$	$\frac{36}{2}$	$\frac{37}{2}$	$\frac{38}{2}$	$\frac{39}{2}$
$\frac{20}{2}$	$\frac{21}{2}$	$\frac{22}{2}$	$\frac{23}{2}$	$\frac{24}{2}$	$\frac{25}{2}$	$\frac{26}{2}$	$\frac{27}{2}$	$\frac{28}{2}$	$\frac{29}{2}$
$\frac{10}{2}$	$\frac{11}{2}$	$\frac{12}{2}$	$\frac{13}{2}$	$\frac{14}{2}$	$\frac{15}{2}$	$\frac{16}{2}$	$\frac{17}{2}$	$\frac{18}{2}$	$\frac{19}{2}$
<b>Start</b>	$\frac{1}{2}$	$\frac{2}{2}$	$\frac{3}{2}$	$\frac{4}{2}$	$\frac{5}{2}$	$\frac{6}{2}$	$\frac{7}{2}$	$\frac{8}{2}$	$\frac{9}{2}$

# Halfplay $\frac{1}{2}$ linear, improper fractions (part 2)

$\frac{90}{2}$	$\frac{91}{2}$	$\frac{92}{2}$	$\frac{93}{2}$	END					
$\frac{80}{2}$	$\frac{81}{2}$	$\frac{82}{2}$	$\frac{83}{2}$	$\frac{84}{2}$	$\frac{85}{2}$	$\frac{86}{2}$	$\frac{87}{2}$	$\frac{88}{2}$	$\frac{89}{2}$
$\frac{70}{2}$	$\frac{71}{2}$	$\frac{72}{2}$	$\frac{73}{2}$	$\frac{74}{2}$	$\frac{75}{2}$	$\frac{76}{2}$	$\frac{77}{2}$	$\frac{78}{2}$	$\frac{79}{2}$

# Halfplay $\frac{1}{2}$ linear (part 1)

<b>30</b>	30 $\frac{1}{2}$	<b>31</b>	31 $\frac{1}{2}$	<b>32</b>	32 $\frac{1}{2}$	<b>33</b>	33 $\frac{1}{2}$	<b>34</b>	34 $\frac{1}{2}$
<b>25</b>	25 $\frac{1}{2}$	<b>26</b>	26 $\frac{1}{2}$	<b>27</b>	27 $\frac{1}{2}$	<b>28</b>	28 $\frac{1}{2}$	<b>29</b>	29 $\frac{1}{2}$
<b>20</b>	20 $\frac{1}{2}$	<b>21</b>	21 $\frac{1}{2}$	<b>22</b>	22 $\frac{1}{2}$	<b>23</b>	23 $\frac{1}{2}$	<b>24</b>	24 $\frac{1}{2}$
<b>15</b>	15 $\frac{1}{2}$	<b>16</b>	16 $\frac{1}{2}$	<b>17</b>	17 $\frac{1}{2}$	<b>18</b>	18 $\frac{1}{2}$	<b>19</b>	19 $\frac{1}{2}$
<b>10</b>	10 $\frac{1}{2}$	<b>11</b>	11 $\frac{1}{2}$	<b>12</b>	12 $\frac{1}{2}$	<b>13</b>	13 $\frac{1}{2}$	<b>14</b>	14 $\frac{1}{2}$
<b>5</b>	5 $\frac{1}{2}$	<b>6</b>	6 $\frac{1}{2}$	<b>7</b>	7 $\frac{1}{2}$	<b>8</b>	8 $\frac{1}{2}$	<b>9</b>	9 $\frac{1}{2}$
<b>Start</b>	$\frac{1}{2}$	<b>1</b>	1 $\frac{1}{2}$	<b>2</b>	2 $\frac{1}{2}$	<b>3</b>	3 $\frac{1}{2}$	<b>4</b>	4 $\frac{1}{2}$

# Halfplay ½ linear (part 2)

<b>45</b>	45 ½	<b>46</b>	46 ½	<b>47</b>	<b>END</b>				
<b>40</b>	40 ½	<b>41</b>	41 ½	<b>42</b>	42 ½	<b>43</b>	43 ½	<b>44</b>	44 ½
<b>35</b>	35 ½	<b>36</b>	36 ½	<b>37</b>	37 ½	<b>38</b>	38 ½	<b>39</b>	39 ½

Halfplay ½

<b>END</b>	<b>47</b>	46 ½	<b>46</b>	45 ½	<b>45</b>	44 ½	<b>44</b>	43 ½	<b>43</b>	42 ½	<b>42</b>
<b>36</b>	36 ½	<b>37</b>	37 ½	<b>38</b>	38 ½	<b>39</b>	39 ½	<b>40</b>	40 ½	<b>41</b>	41 ½
35 ½	<b>35</b>	34 ½	<b>34</b>	33 ½	<b>33</b>	32 ½	<b>32</b>	31 ½	<b>31</b>	30 ½	<b>30</b>
<b>24</b>	24 ½	<b>25</b>	25 ½	<b>26</b>	26 ½	<b>27</b>	27 ½	<b>28</b>	28 ½	<b>29</b>	29 ½
23 ½	<b>23</b>	22 ½	<b>22</b>	21 ½	<b>21</b>	20 ½	<b>20</b>	19 ½	<b>19</b>	18 ½	<b>18</b>
<b>12</b>	12 ½	<b>13</b>	13 ½	<b>14</b>	14 ½	<b>15</b>	15 ½	<b>16</b>	16 ½	<b>17</b>	17 ½
11 ½	<b>11</b>	10 ½	<b>10</b>	9 ½	<b>9</b>	8 ½	<b>8</b>	7 ½	<b>7</b>	6 ½	<b>6</b>
<b>Start</b>	½	<b>1</b>	1 ½	<b>2</b>	2 ½	<b>3</b>	3 ½	<b>4</b>	4 ½	<b>5</b>	5 ½

# Cards of fortune (enlarge on A3 and cut it out)

One half ahead	One half back	Three wholes ahead	Three wholes back	Play at dice once again	Go to 20 ½
Two halves ahead	Two halves back	Six wholes ahead	Six wholes back	Play at dice twice again	Go to 10 ½
Five halves ahead	Five halves back	Nine wholes ahead	Nine wholes back	Go to 23 ½	Go to 19 ½
Ten halves ahead	Ten halves back	Twelve wholes ahead	Twelve wholes back	Go to 33 ½	You lose. Start again
Twenty halves ahead	Twenty halves back	Double and go ahead	Halve and go back	Go to 18 ½	Winner! Pause or play