

## CHECK YOUR BILLS!

### Discover the numeracy secrets of invoices and bills

The bill at the supermarket, at the restaurant or in a DIY store - sometimes it seems like a closed book: Where do all those numbers come from? Did they really deduct the discount? Is the quantity on the invoice identical to the quantity in my shopping cart? Is the change correct? Which extra charges was I charged? And of course: Where does this horrendous sum at the bottom of the bill come from?

Let's open this closes book together and discover all kinds of secrets...

#### Overview "INVOICE CHECK"

How to understand  
numbers and  
calculations on invoices  
and bills

**Context**  
Everyday life  
Finances

**Cognitive processes**  
Managing situations  
Analysing situations  
Problem solving  
Critical thinking

**Content**  
Quantity and number  
Using digital skills  
Pattern, relationship and  
change

**Target group (incl. necessary prior skills and competences)**

Adults and young adults with basic numeracy competences (addition, multiplication) and willing to analyse, overthink and change their numeric behaviour

**Dispositions**  
Self-confidence  
Math difficulties

**Outcomes and results**

Learners do / simulate a reflective purchase.  
Learners understand numeracy information on bills and invoices.



| Main information                                 |  |
|--|--|
| <b>Content</b>                                   | Basic arithmetic operations (focus on addition and multiplication)<br>Decimals<br>Percentages  |
| <b>Target group</b>                              | Adults and young adults with basic numeracy competences (addition, multiplication) and willing to analyse, overthink and change their numeric behaviour  |
| <b>Learning intention</b>                        | What is the intention of adults to face this problem?<br>– Numeracy for personal and private purposes<br>– Numeracy to understand society  |
| <b>Duration</b>                                  | 2 to 4 lessons   |
| <b>Material and resources</b>                    | Pictures and photos for real-life-situations in shops and restaurants (appendix 1)<br>Exemplary bills (appendix 2)<br>Worksheet or app to calculate change (appendix 3)<br>Exemplary shopping list (appendix 4)  |
| <b>Group size</b>                                | Range from 5 to 12 learners  |
| <b>Problem statement</b>                         | Understanding bills from places like supermarkets, restaurants, or DIY stores can be confusing. You might wonder where the numbers come from, if discounts are right, or if the quantities match your cart. This session will simplify and clarify these financial transactions for you. |
| <b>Working questions</b>                         | What kind of information do we find on bills and invoices and how to interpret this information?<br><br>How can we easily and quickly check our change?<br><br>How to decide on the best offer of a product?   |
| <b>Learning outcomes and results</b>             | Learners do / simulate a reflective purchase. Learners understand numeracy information on bills and invoices.  |
| <b>Reference to National Qualification Frame</b> | Optional (country's decision)  |



Working plan

| Time (lessons) | Description of content/activities  | Material   | Methodical and didactic information <sup>1</sup>                       |
|----------------|--|--|--|
| 15 min         | <p><b>Activation: Story telling</b></p> <p>To place the learners in the situation, show pictures of shopping situations or restaurant visits and ask them to tell stories about them. This not only encourages creativity, but also offers the opportunity to use vocabulary and expressions in a real-life context.</p>   | <p>Pictures and photos of real-life-situations in shops or restaurants</p> <p>(see appendix 1)</p> | <p>Metacognitive strategies, Questioning, Collaborative learning</p>   |
| 30 min         | <p><b>Activity 1: Discover your bills</b></p> <p>Guide learners through an open exploration and analysis of invoices and bills:<br/>Show them different bills from everyday life (supermarket, hotel, restaurant, gas station, hardware store,...) or ask them in advance to collect their own bills and bring them along. The learners can be guided through this analysis with guiding questions of varying complexity.</p> <p>Possible questions in this phase:</p> <ul style="list-style-type: none"> <li>• What do you see first on an invoice?</li> <li>• What's on the right and what's on the left?</li> <li>• Where do you see the number of items purchased? Where do you see the unit price?</li> </ul> | <p>Exemplary bills either via beamer / smartboard or on copies</p> <p>(see appendix 2)</p>         | <p>Questioning</p> <p>Putting learners in a mathematical situation</p> |

<sup>1</sup> for description and explanation of kinds of tasks, HITs and other background information please consult the teacher's/user's guide



|        |   |  |  |
|--------|---|--|--|
|        | <ul style="list-style-type: none"> <li>• Which calculation do you think of first when you see this?</li> <li>• Is there anything on the calculation that you can't understand?</li> <li>• What is a discount or price reduction? How do you recognize it?</li> </ul>  |  |  |
| 15 min | <p><b>Activity 2: Check your change</b><br/>One of the most challenging moments when shopping or consuming is paying and checking the change. Help your learners to deal with these stressful moments by practicing and training them - from abstract to concrete.</p> <p>There are various activities and exercises to do so, for example in pair work practicing with play money (should be as realistic as possible), by paper-and-pen calculations or by doing online exercises or using learning apps.</p>   | Depending on the chosen activities: worksheet, play money, computer and internet to use app (see appendix 3) | <p>Hands on learning</p> <p>Problem solving</p> <p>pair work or small group work</p> |
| Indiv. | <p><b>Transfer: Get the practice!</b><br/>A small team challenge should support the transfer to everyday life once again: The learners are given a shopping list and, in small groups, try to buy these products in a store of their choice at the lowest possible price. This can either take place online, with brochures or ideally - if budget permits - in real life. If the exercise takes place online or with brochures, the learners are required to write a corresponding invoice themselves. The winning team is the one that was able to complete the entire shopping list at the lowest price.</p> | Exemplary shopping list (see appendix 4)   | <p>Hands on learning</p> <p>Putting learners in a mathematical situation</p>         |



## Suggestions for the teacher

The example presented here should be considered as exemplary and inspirational material presenting a guideline with a high range of possibilities of adapting those suggestions to a specific group of learners or an individual learner with his or her very personal requirements.

In concrete terms, the example CHECK YOUR BILLS could be adapted these ways:

- **Duration:** Depending on the level of numeracy knowledge of the learners, it can be useful to plan a longer duration for the activities, especially the training on how to check your change.

Furthermore, the duration of the last activity in the working plan (transfer) depends a lot on the way it is driven (in a real-life shopping situation or by using prospects resp. online information)

- **Level of difficulty:** Depending on the prior knowledge of the learners or subgroups of learners, different levels of difficulty can be selected for the tasks. For example, the exemplary bills and invoices can be limited to simple additions and multiplications, but can also include discounts or cash discounts (percentages).
- **Learning setting:** Learners who are practiced in reflective and analytical activities can also carry out the activation phase in small groups and finally bring them together in plenary.

Our educational activities aim at numeracy skills being not only memorized, but first of all being practiced and functionally used by the learners in daily life or/and vocational situations. It is therefore recommended to implement the idea of HITS<sup>2</sup> (higher impacts of teaching skills) as far and often as possible: ...

- ... work with concrete and authentic material that learners will recognize from everyday life situations. When working with this example, learners can collect bills and invoices from their everyday life and bring them along.
- ... ask the learners questions and let them raise questions themselves. It can be crucial to discuss numeracy themes, contexts and numbers.
- ... think of possible ways of transfer: For this concrete example, you can think of combining the learning situation with the example “Can a shopping list help me save money?”

---

<sup>2</sup> For general information and explanation on HITS please consult the teacher’s/user’s guide



Appendix

Appendix 1: Pictures and photos for activation



Source: [www.pixabay.com](http://www.pixabay.com) [19.11.2023]



This work is licensed under CC BY-SA 4.0. To view a copy of this license, visit <https://creativecommons.org/licenses/by-sa/4.0/>

**Appendix 2: Bills and invoices (exemplary material)**

**muki TOYS & more**  
Handels- und DienstleistungsgesmbH  
AT-4840 Vöcklabruck, Linzerstr. 61  
Telefon: +43(0)6133/8282-13

BONNUMMER: 784808 013/01 10.07.2023  
09:42

01301

|                 |                                |            |       |
|-----------------|--------------------------------|------------|-------|
| 640 1157565     | Malen nach Zahlen Junior Katze | 16,99      | 16,99 |
| 1 Stk           |                                |            |       |
| Mge: 1          | GESAMT €                       |            | 16,99 |
|                 | ZAHLBETRAG €                   |            | 16,99 |
| Zahlungsmittel: |                                |            |       |
|                 | KARTE €                        |            | 16,99 |
|                 | SUMME €                        |            | 16,99 |
| =====           |                                |            |       |
| NETTO           | 14,16                          | MWST 20,0% | 2,83  |

Kassier:  
Anna



JETZT QR-Code scannen und SOFORT Punkte sammeln und JEDERZEIT als Sofort-Rabatt einlösen. App - "muki TOYS & more" installieren und los gehts.

Umtausch nur gegen Vorlage des Bons!  
UID#: ATU21954204  
Besuchen Sie uns auf unserer Homepage [www.muki-toys.com](http://www.muki-toys.com)  
E-Mail: [shop@muki-toys.com](mailto:shop@muki-toys.com)

\*\*\* Kundenbeleg \*\*\*

Zahlung  
Debit Mastercard  
contactless  
XXXX XXXX XXXX 6834  
10.07.2023 09:42:3  
Trx-Id: 2322364  
AID: A00000004101  
Trx Seg-Nr: 9612  
Trx Ref. Nr: 2726038407  
Autorisierungs-Nr: 60951  
Acq-Id: 99910020  
Betrag EUR: 16,9

**MediaMarkt**  
MediaMarkt Vöcklabruck GmbH  
Linzer Strasse 50  
4840 Vöcklabruck  
UID-NR. ATU62093503  
PE A018-104/00666026

|                              |             |
|------------------------------|-------------|
| 1849857                      | 47,06       |
| HX 3673/13 SONICARE SERIE 31 |             |
| 610 ZAHNBUERSTE ELEKTRISCH   |             |
| 1485774 (2 x 45,99)=         | 91,96       |
| HX 5322/04 SONICARE KIDS CON |             |
| 610 ZAHNBUERSTE ELEKTRISCH   |             |
| 1784555                      | 119,99      |
| VAC 485 VAKUUMIERER 15L SCHW |             |
| 670 FOLIENSCHNEISSGERAET     |             |
| -----                        |             |
| Total                        | 258,97      |
| CENTER GUTSCHEIN             | 200,00      |
| Attendant-Id:                | 29020       |
| ECR-Id:                      | 104         |
| ECR-Seq:                     | 138         |
| EFT Ref-No:                  | 00622927    |
| Buchung                      |             |
| Debit Mastercard Contactless |             |
| XXXXXXXXXXXX6834             |             |
| 30.05.2023                   | 15:57       |
| Trx-Id:                      | 31430164    |
| Trx. Seq-Cnt:                | 00622927    |
| Auth. Code:                  | 733794      |
| Acq-Id:                      | 00999100200 |
| Total-TTT EUR:               | 58,97       |
| MASTERCARD                   | 58,97       |
| incl. 20,00% Mwst (b)        | 45,17       |
| Netto-Warenwert: (b)         | 215,80      |

Vielen Dank für Ihren Einkauf!

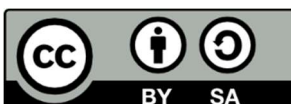
49015 A018 104 29020 30.05.2023 15:57



4901500677104202305301557



Jetzt Clubmitglied werden unter:



**INTERSPAR**

**VARENA**  
Linzerstrasse 50  
4840 Vöcklabruck  
Tel.: 07672/74890

Ihr Einkauf am 21.09.2023 um 17:57 Uhr

|                      | EUR          |
|----------------------|--------------|
| ZEWÄSER              | 5,39 B       |
| EMSA 1LT.            | 5,29 B       |
| KLAFFSPUELER         | 3,99 B       |
| SPAR BIO APFEL 0,75L | 1,39 B       |
| VIPPY MULTI          | 1,25 B       |
| SAMMELKARTEN         | 5,90 B       |
| <b>SUMME:</b>        | <b>23,21</b> |
| ZAHLUNG BAR          | 25,00        |
| RÜCKGELD             | 1,79         |

|        | excl. | MWST. | Incl.   |
|--------|-------|-------|---------|
| 20,00€ | 19,34 | 3,87  | 23,21 B |

Ihre Treuepunkte heute: 2  
(Basis: 23,21)

Kassier: 168000 Kassa 006 Bon 7408 Pos.6



264200087900062309211757357408

Legitimer Kassenerlöshelfersverordnung  
<https://ksw.spar.at/njkb9w8FNDM>

**MIT TREUE PUNKTEN!**  
Langlebig, praktisch, klassisch:  
Top-Produkte von Tupperware  
für Ihre Küche.  
Jetzt ab 10 Treuepunkte günstig kaufen.

**muki TOYS & more**

Handels- und Dienstleistungsgesellschaft  
AT-4840 Vöcklabruck, Linzerstr. 61  
Telefon: +43(0)6133/6282-13

KONNUMER: 7836 13/01 29.06.2023  
14:00

1301

|                        |       |                               |              |
|------------------------|-------|-------------------------------|--------------|
| 640 155 06             | 4,17  | EGO Technic Kipplaster        | 9,99         |
|                        | 1 Stk |                               | 9,99         |
| 640 1158110            |       | Johny Joe Grenade Popping LOL | 1,49         |
|                        | 1 Stk |                               | 1,49         |
| Mge: 2                 |       | <b>GESAMT €</b>               | <b>11,48</b> |
|                        |       | <b>ZAHLBETRAG €</b>           | <b>11,48</b> |
| <b>Zahlungsmittel:</b> |       | <b>BAR €</b>                  | <b>20,00</b> |
|                        |       | <b>SUMME €</b>                | <b>20,00</b> |
|                        |       | <b>RÜCKGABE €</b>             | <b>8,52</b>  |
| NETTO                  | 8,32  | MWST 20,0%                    | 1,67         |
| NETTO                  | 1,35  | MWST 10,0%                    | 0,14         |

Kassier:  
Anna



JETZT QR-Code scannen und FORT  
Punkte sammeln und JEDERZEIT als  
Sofort-Rabatt einlösen.  
App - "muki TOYS & more" installieren  
und los gehts.

Umtausch nur gegen Vorlage des Bons!  
VIP#: ATU21954204  
Besuchen Sie uns if unsere  
[www.muki-toys.com](https://www.muki-toys.com)  
E-Mail: [shop@muki-toys.com](mailto:shop@muki-toys.com)

Source: own photos





**Appendix 3: Check your change**


Training online: [www.matheretter.de/mathe-spiele/kasse](http://www.matheretter.de/mathe-spiele/kasse)


Level: Einfach - Kunde 1 von 32


10,00 €

richtig: 0 | falsch: 0 | Fehler: 0,00 €

Kunde muss zahlen: **64.05 €**

Der Kunde gibt dir: 

Lege das Rückgeld hier hin: 




Dein Kassengeld: 

Zurückgeben

Source: Screenshot from [www.matheretter.de/mathe-spiele/kasse](http://www.matheretter.de/mathe-spiele/kasse) [19.11.2023]

Training online: [https://online-lernen.levrai.de/mathematik/klasse\\_5/euro\\_cent/202\\_euro\\_cent\\_wechselgeld.htm](https://online-lernen.levrai.de/mathematik/klasse_5/euro_cent/202_euro_cent_wechselgeld.htm)

Dein Einkauf kostet 2,35 Euro. Du zahlst mit einem 5-Euro-Schein. Wie viel Münzen (möglichst wenig) bekommst du zurück?

|   |                      |   |                      |
|---|----------------------|---|----------------------|
|  | <input type="text"/> |  | <input type="text"/> |
|  | <input type="text"/> |  | <input type="text"/> |
|  | <input type="text"/> |  | <input type="text"/> |
|  | <input type="text"/> |  | <input type="text"/> |

Aufgabe überprüfen | Hilfe

Source: Screenshot from <https://online-lernen.levrai.de> [19.11.2023]



## Appendix 4: Exemplary shopping list

### Shopping list

| Amount     | Product         | Department            | PRICE |
|------------|-----------------|-----------------------|-------|
| 1 kilo     | apples          | Fruit and vegetable   |       |
| 5          | bananas         | Fruit and vegetable   |       |
| 2          | Cucumbers       | Fruit and vegetable   |       |
| 200 g      | Cheese          | Dairy products        |       |
| 1 liter    | Milk            | Dairy products        |       |
| 10 bottles | Sparkling water | Beverages             |       |
| 1 packet   | Toast           | Bread products        |       |
| 0,5 kilo   | Bread           | Bread products        |       |
| 10 rolls   | Toilet paper    | Hygiene and household |       |
| 2 tubes    | Hair shampoo    | Hygiene and household |       |
| 1 tube     | Toothpaste      | Hygiene and household |       |
|            |                 |                       |       |
|            |                 |                       |       |
|            |                 |                       |       |
|            |                 |                       |       |
|            |                 |                       |       |
|            |                 |                       |       |
|            |                 |                       |       |