**Student Activity – Representations**

**Four students Aoife, Sadiq, Ben and Maria decide to represent their savings/spending in € in different ways:**

1. **State how they each represent their savings. Do you think they made a good choice? Give reasons for your answer.**

|  |  |
| --- | --- |
| **Name** | **Representation** |
| **[http://t3.gstatic.com/images?q=tbn:ANd9GcRK7ktUhJmxoQvQyVGbi9yMsJdAX2R11z2Ws6CCcIFP0MJl-VMGoQhPsw2y](http://www.google.ie/imgres?imgurl=http://www.sligotoday.ie/st-panel/openwysiwyg/uploads/FocusIreland%20004.jpg&imgrefurl=http://www.sligotoday.ie/details.php?id=10665&PHPSESSID=11788168abf6ac029ab9c371cdc441d9&usg=__rmQg77b6c-VGifHVB_FqdgRemFE=&h=400&w=600&sz=124&hl=en&start=46&zoom=1&itbs=1&tbnid=lrPfjbT9LUHRgM:&tbnh=90&tbnw=135&prev=/images?q=Irish+school+student&start=36&hl=en&sa=N&gbv=2&ndsp=18&tbs=isch:1&ei=ydeHTdWKJceBhQfXhNG9BA)** Aoife | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Day** | **0** | **1** | **2** | **3** | **4** | **5** | | **Amount** | **12** | **15** | **18** | **21** | **24** | **27** | |
| **[http://t0.gstatic.com/images?q=tbn:ANd9GcSMe717enI-nh3cCsttP0Qg0m60Be4hgKj7xQc0rLeVR8I415C-JVIziw](http://www.google.ie/imgres?imgurl=http://collegetools.berkeley.edu/images/photos/AAboy-OKsign.jpg&imgrefurl=http://collegetools.berkeley.edu/challenge.php&usg=__LHkrduiUNd1ZCCN-64MFWkqETk4=&h=400&w=300&sz=16&hl=en&start=16&zoom=1&itbs=1&tbnid=HkiskDk1lrccWM:&tbnh=124&tbnw=93&prev=/images?q=high+school+student&hl=en&sa=G&gbv=2&tbs=isch:1&ei=VNiHTeXNGJSyhAfXxbXBBA)** Sadiq |  |
| **[http://t3.gstatic.com/images?q=tbn:ANd9GcQoEnqQta4vqZhd2sW07I_KpQupaAhtXBy_k-8IbNgwL_CHDRk1iixs83iM](http://www.google.ie/imgres?imgurl=http://www.it-solutions.siemens.com/country/cee/PublishingImages/Welcome-Images/high-school-students.jpg&imgrefurl=http://www.it-solutions.siemens.com/country/cee/en/austria/jobs-careers&usg=__tshx1Pfw7CiFSK7ytrTpeO4YSn4=&h=393&w=638&sz=28&hl=en&start=5&zoom=1&itbs=1&tbnid=WEKXop8c-F-poM:&tbnh=84&tbnw=137&prev=/images?q=high+school+students&hl=en&sa=G&gbv=2&tbs=isch:1&ei=AtaHTbwMkrCEB4vxyMME)**  **Ben** | Ben has €95 and he doesn’t plan to save or spend for the year |
| **Maria**  **[Girl in the library](http://www.istockphoto.com/stock-photo-13749145-girl-in-the-library.php?st=d8d8547)** | **24 – 2x** |

**2.Match the representations that describe the savings/spending of Aoife, Sadiq, Ben and Maria**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Day** | 0 | 1 | 2 | 3 | 4 | | **Amount** | 24 | 22 | 20 | 18 | 16 | |  | I start with €12 and I save €3 every day | 12 + 3d |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Day** | 0 | 1 | 2 | 3 | 4 | | **Amount** | 5 | 6.5 | 8 | 9.5 | 11 | |  | I start with €24 and I spend €2 every day | 5 + 1.5d |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Day** | 0 | 1 | 2 | 3 | 4 | | **Amount** | 95 | 95 | 95 | 95 | 95 | |  | I start with €5 and I save €1.50 every day | 95 |

**Student Activity – Savings**

**Tech-Toc Computer Company is advertising a limited offer on Laptops that will be available in the coming months:**

**2 laptops for the price of 1 for €500**

**The following expressions describe the daily savings/spending in € of pairs of brothers and sisters in 5 different families interested in the laptop offer.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **O’ Donnell** | **Harrington** | **Foley** | **Mc Carthy** | **Collins** |
| **Mary:**  **2d + 1** | **Isabelle:**  **300 – 2d** | **Cian:**  **200** | **Fionn:**  **5d** | **Avril:**  **452 – d** |
| **John:**  **3 + 2d** | **Sarah:**  **4d + 30** | **Mark:**  **-16 + 4d** | **Ellen:**  **10** | **Mike:**  **d + 40** |

1. **Match the expressions to their description in TABLE X. In some cases there is more than one description.**
2. **Find expressions as simple as possible to describe the combined savings/spending of the families:**

**Mary and John O’ Donnell: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Isabelle and Sarah Harrington: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Cian and Mark Foley: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Fionn and Ellen Mc Carthy: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Avril and Mike Collins: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. **Explain the steps for simplifying these expressions using an example from the table.**

**Extension Questions:**

1. **If the laptop offer is available in 12 weeks from when the families start saving,**
2. **which family will be the first to reach €500? Explain how you arrived at your answer.**
3. **if the laptops at this price sell out in 2 weeks after they become available, what families fall short of the offer? Explain your answer.**
4. **What if they decided not to go by family, name the pairs that will be in a position to buy the laptops if they become available in 2 weeks time. Explain your reasoning.**
5. **The O’ Donnell and Mc Carthy families decide to combine all their savings/spending to avail of the laptop offer:**
6. **Write an expression as simple as possible to describe their combined savings/spendings**

**(b)John O’ Donnell decides to opt out:**

1. **Represent this situation using the expression from 5(a) and John’s expression:\_\_\_\_\_\_\_\_\_\_\_\_**

**(ii) Students were asked to simplify this expression:**

**Student A wrote:** 7d + 17

**Student B wrote**: 7d +11

**Student C wrote: 11d + 11**

**Which student simplified the expression correctly?**

1. **What advice would you give to the students who didn’t simplify the expression correctly?**

**Table X**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Starts with €1 and saves €2 every day** | **Starts with €452 and spends €1 every day** | **Starts with €200 and doesn’t save anything** | **Starts with €30 and saves €4 every day** | **Starts with €40 and saves €1 every day** |
| **Starts with €300 and spends €2 every day** | **Multiply d by 4 and add 30** | **Multiply d by 2 and then add 3** | **Starts with nothing and saves €5 everyday** | **Add 4 to 6, then multiply by 40 and divide by 2** |
| **Owes 16 and saves €4 everyday** | **Starts with €10 and doesn’t save anything** | **Subtract 4 from d and then multiply by 4** | **Subtract d from 150, then multiply by 2** | **Multiply d by two then add one** |