1. **Listening**
2. **Listen to Vicky Neal’s speech on prime numbers and answer the following questions:**
3. What is her research field?

Her research field is number theory

1. How does she define prime numbers? (transcribe)

It’s a number only divisible by one and itself.

A prime number is a whole number bigger than one, that is divisible only by one and itself

1. How does she explain the fact that 1 is not a prime number?

Because part of the job of mathematicians is to make good definitions, to make definitions that lead to interesting mathematics, and it happened to be a better definition to define 1 not to be a prime number

1. What is special about the number 2?

It is the only even prime number. It’s a slightly special case.

1. What does she want to demonstrate by showing her ten per ten grid ?

She wants us to see the grid as mathematicians, and try to look for patterns, start to wonder.. (for example: Ask ourselves if the pattern will continue beyong the bottomest line - can I prove it ? Ask ourselves if, after the bottom of the grid, the primes are going to become more sparse…)

She wants to demonstrate visually that, for example, there are no prime number in the “even” columns, and no prime numbers in the “5” column, after the 5

1. What example does she give first?

The example of the 5 column

5 is the only prime in his own column

1. **Find the following words in the speech and explain their meaning:**

|  |  |
| --- | --- |
| 1. Keen   someone very interested in the subject, the moment. Enthusiastic, like the students attending the conference   1. whole number   a whole number is a number that has no decimal part   1. to come across   “I guess some of you have come across Euclide, in geometry maybe”  Which means : “have met him”   1. factor   “It has to have a prime factor”  A factor is the number by which a superior number is divisible (the result being a whole number)   1. whether   express the conditionnal : like “if”, or, alos, used in a proposition of 2 (“whether this, or that”) | 1. Pattern   a model, the result of a reflexion that can be generalized to a whole process   1. stone tablets   Support for writing used before the invention of paper. The phrase “stone tablets” is used to suggest that an idea is unchangeable, just like it was carved in the stone, written and not erasable   1. even number   Numbers that is divisible by 2 (the result being a whole number)   1. shade   to color an area in grey / the color of the such area   1. pick out   to select, to choose (and show) an item |

1. **Fill in the blanks with the missing preposition. Then listen again to the talk and check your answers :**

**about / at/ by / for / in / of / to**

1. I’m slightly anxious \_\_\_about\_\_\_\_\_\_\_\_ the technology.

2. I’m going to talk \_\_\_about\_\_\_\_\_\_ prime numbers.

3. I’m interested \_\_\_\_in\_\_\_\_\_ properties \_\_\_\_of\_\_\_\_ whole numbers.

4. It’s a good idea to start \_\_\_by\_\_\_\_ being very clear \_\_about\_\_\_\_\_ what a prime number is.

5. Definitions are important \_at\_\_\_\_\_ mathematics.

6. Mathematicians are good \_\_\_at\_\_\_\_ looking \_\_\_for\_\_\_\_\_patterns.

7. If I take an even number that is bigger than 2, then it’s divisible \_\_\_by\_\_\_\_ 1, it’s divisible \_by\_\_\_ itself and it’s divisible \_by\_\_\_\_2, so it’s not prime.

1. **Reading and Writing**
2. **Read the interview with Daniel Tammet and write down the missing questions.**

**Daniel Tammet:**

**'Maths is as rich, inspiring and human as literature is.'**

[*Adam Feinstein*](https://www.theguardian.com/profile/adam-feinstein)

The Guardian, 11 Nov 2012

**British writer Daniel Tammet is a mathematical savant with Asperger's syndrome and synaesthesia. His third book,** *Thinking in Numbers: How Maths Illuminates Our Lives***, is a collection of 25 essays exploring mathematics as "the science of imagination". He is also a gifted linguist.**

**At school, did you feel yourself different from other children ?**

Yes, I was very different and for a reason that seems invisible. Other children **sniff out** these differences, I was called names and **teased**. But I had no diagnosis at school. Asperger's syndrome only came in officially as a diagnosis in 1994. I had difficulties with understanding social interactions and problems with hygiene, but I managed to control my behaviours and I was under the radar for another few years. When I achieved the European record for reciting pi in 2004, this captured the imagination of Professor Simon Baron-Cohen in Cambridge and he finally diagnosed me with Asperger's that year.

**What did you feel when you have been diagnosed of this syndrome ?**

A huge relief, because I could stop feeling guilty. Guilty about not going to university. I didn't have many friends and I also **blamed** that on myself, for being lazy or cack-handed. But now, with the diagnosis, I knew that I had developed differently.

**Is there something which changed since you published your book and became a writer ?**

Well, I now spoon out the cereal! I do still have a sense of control and routine but this is much less of an issue now. That book was written while I was wrestling with my childhood. I was incredibly lucky that my first book found a large and **loyal** readership. It changed my life – from being a very withdrawn adult to living in Paris as a full-time writer. It has also given me enormous confidence.

**Aren't the language rules a barrier to your creativity ?**

Certainly. But the rules **can be bent** and played with. Like mathematics, languages are a great source of creativity. Maths is as rich, inspiring and human as literature is.

**What were your inspirations in your writings ?**

GK Chesterton was an early inspiration for Thinking in Numbers– especially his essays. I have surprised myself by moving into fiction. Fiction has taught me about maths – they are much more similar than people tend to believe. Both respond to fundamental questions about life. Both deal with meaning – in maths, it is about the nature of a point, a line or a square. I've tried to bring storytelling to mathematics. There are very few readable books about maths. I'm not a professional mathematician and I find abstractions very difficult, but I love the detail.

**What interests you most about math ?**

Aesthetics interests me most. Aesthetics – rather than reason – shapes our thought processes. First comes aesthetics, then logic. Thinking in Numbersis not about an attempt to impress the reader but to include the reader, draw the reader in, by explaining my experiences – the beauty I feel in a prime number, for example. Prime numbers can be poetic. I want to break down the barrier between fiction and non-fiction. I want **to bruise** the line by coming up against it.

**Do you have in mind a part of your book that you are most proud of ?**

Yes. The chapter is called A Model Mother, which is a play on words. My mother is not a model. She is not perfect. That awareness is part of learning to love someone. Predicting the actions of someone is an act of love. We persist, even when we get it wrong. That's the beauty of love. But this was a big lesson for a child with autism – the fact that we all make mistakes.

**When did you realized that you have the synaesthesia trait ?**

That's hard to say, because when I saw the number 9 as dark blue, I assumed everyone felt like that! In my case, numbers and language feed into each other. They are mutually nourishing. My synaesthesia is enormously enriching, as it was for Vladimir Nabokov. And my autism informs my writing, because of my experience as an outsider. Numbers were my friends – I didn't have any others. I now have friends and a partner, Jérôme. People with autism are just as capable of falling in love as anyone else.

**What is the next writing project you would like to do?**

I hope to write a novel based on the 1972 Fischer-Spassky chess match in Reykjavik. I have lots of friends there and I am collecting anecdotes about the match right now.

**2. Match the following definitions with words from the text:**

1. A savant is someone who has a lot of knowledge.
2. Synaesthesia is a condition in which two or more of the five senses that most people experience separately are mixed so that, for example, a person may see colour when they hear a particular sound or read a particular word.
3. A relief is a relaxed happy feeling that you get because something bad has not happened or a bad situation has ended.
4. Readership is the group or number of people who read a particular newspaper, book, or magazine.
5. Someone who is Asperger is very quiet and preferring not to talk to other people.
6. \_\_\_\_awareness\_\_\_\_\_\_\_ is knowledge or understanding of a subject, issue, or situation.

**3. Find synonyms for the words in bold in the text.**

**-** Other children **sniff out** these differences **: Other children detect these differences**

**-** I was called names and **teased : I was called names and pestered**

**-** I also **blamed** that on myself **: I also took myself responsible for that**

**-**  that my first book found a large and **loyal** readership : a large and **faithful** readership

**-**  But the rules **can be bent** and played with : can be **twisted**

- I want **to bruise** the line by coming up against it **: to crush**

**Quiz on Prepositions**

**For each question, choose the single best answer.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 1. My best friend lives on Boretz Road.   |  | | --- | | **a.** in | | **b.** on | | **c.** at |   2. I'll be ready to leave in about twenty minutes.   |  | | --- | | **a.** in | | **b.** on | | **c.** at |   3. Since he met his new girlfriend, Juan never seems to be at home.   |  | | --- | | **a.** on | | **b.** in | | **c.** at |   4. The child responded to his mother's demands by throwing a tantrum.   |  | | --- | | **a.** with | | **b.** by | | **c.** from |   5. I think she spent the entire afternoon on the phone.   |  | | --- | | **a.** on | | **b.** in | | **c.** at |   6. I will wait until 6:30, but then I'm going home.   |  | | --- | | **a.** from | | **b.** at | | **c.** until |   7. The police caught the thief at the corner of Cascade and Plum Streets.   |  | | --- | | **a.** in | | **b.** at | | **c.** from |   8. My fingers were injured so my sister had to write the note for me.   |  | | --- | | **a.** for | | **b.** with | | **c.** to |   9. I am not interested in buying a new car now.   |  | | --- | | **a.** to | | **b.** for | | **c.** in |   10. What are the main ingredients of this casserole?   |  | | --- | | **a.** about | | **b.** to | | **c.** of |   11. My best friend, John, is named after his great-grandfather. | |  | | --- | | **a.** after | | **b.** to | | **c.** about |   12. Grandpa stayed up until two in the morning.   |  |  | | --- | --- | | **a.** since | | | **b.** for |  | | **c.** until |  |   13. My parents have been married for forty-nine years.   |  | | --- | | **a.** since | | **b.** for | | **c.** until |   14. He usually travels to Philadelphia by train.   |  | | --- | | **a.** by | | **b.** at | | **c.** with |   15. You frequently see this kind of violence on television.   |  | | --- | | **a.** with | | **b.** in | | **c.** on |   16. I told Mom we'd be home in an hour or so.   |  | | --- | | **a.** to | | **b.** in | | **c.** at |   17. I was visiting my best friend at the hospital.   |  | | --- | | **a.** of | | **b.** at | | **c.** in |   18. The professor from South Africa amazed the American students with her stories.   |  | | --- | | **a.** from | | **b.** of | | **c.** in |   19. I'll see you at home when I get there.   |  | | --- | | **a.** in | | **b.** by | | **c.** at |   20. It's been snowing since Christmas morning.   |  | | --- | | **a.** since | | **b.** for | | **c.** until | |