

An illustration of a courtroom scene. In the center, a judge in a black robe stands with hands clasped. To the left, a green robot with a smiling face and a black visor stands behind a wooden bench. In the foreground, several children are seated in wooden chairs, looking towards the judge. A large wooden scale of justice is visible in the background. The scene is set against a light green background with a blue flag on the left.

# Courtroom Tech

How New Technologies Are Changing Justice

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# COURTROOM TECH

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## Chapter 1

# Where Tim discovers a disaster

When Tim came home that day, he was in a bad mood. He had waited for Alma outside the school because they usually walked home together, but she had never showed up. Alma, who had forgotten to tell him that her classes had finished early, had already left, and Tim ended up walking home alone, grumbling about his sister who was so unreliable. She never paid any attention to anything, forgetting plans, losing things and breaking stuff. Tim thought angrily about his bike helmet, which Alma had lost last week after borrowing it without asking.

As soon as he opened the entrance door, Tim had a strange feeling.

Something was off, but he couldn't quite put his finger on it. The house was silent. A few autumn leaves had blown in with him through the door, now scattered on the kitchen floor among the crumbs of ginger biscuits. Those crumbs confirmed that Alma had indeed come home before him. Not only had she forgotten their meeting, she hadn't even waited for him to have a snack! It wasn't until Tim entered the living room that his eyes were drawn to something shiny on the floor. As he approached, he was horrified to see his amber fossil smashed into a thousand pieces. It had been a gift from his mother, brought back from one of her digs. A replica of a real fossil of a giant lizard that her team of paleontologists had found.



Rushing to the small orange shards, Tim carefully collected them and tried to piece the fossil back together, but it was impossible. The pieces were too small, the jigsaw too complex. Tim felt tears welling up. Just then Alma burst into the room, headphones over her ears. When she saw her brother's devastated face, she took them off and came closer, noticing the broken fossil on the floor.



“I told you not to touch it!” Tim shouted, glaring at his sister.

“It wasn't me!” Alma replied, taking a step back.

“You never let anyone play with your precious fossil.”

“That's because it's not a toy!” Tim replied indignantly. “You don't respect anything. Just like my bike helmet...”

A ringing interrupted him. It was the usual time their mother video-called online while she was away on a dig.

## CHAPTER 2

# Where their mother tries to clear things up

“Mum, Alma broke my lizard fossil!” Tim blurted out as soon as the call went through.

“Alma, how could you?” her mother said severely.

The mother tried to catch her daughter's eyes, but it was hard through the cameras. She could see her children, but their faces were too blurred to pick up the expressions she usually relied on to understand what they were thinking. On her small phone screen, she couldn't see the dimple that appeared on Alma's left cheek when she was hiding something. Nor could she tell if Tim had that evasive look he adopted when he was lying. Most of all, she couldn't look into her children's eyes to under-



stand what they were not saying, to make them feel her presence, her trust and her love.

“I didn’t do anything!” Alma protested. “According to Tim, everything is always my fault! But I haven’t touched his stupid fossil!”

“Liar!” Tim shouted. “I saw you pick it up last Monday and then put it back upside down on its stand.”

“Fine, I just wanted to check something,” Alma muttered, furious

at herself for getting caught.

The truth was that Alma admired Tim’s fossil very much and often made secret visits to it when Tim wasn’t there to guard it with his life.

She would never admit to her brother how jealous she was of the beautiful object. But that didn’t stop Alma, every now and then, from quietly admiring the fossil their mother had given Tim. That afternoon, when she knew she was home alone, she had looked into the golden amber again, tracing with her finger the dark line of the lizard’s spine, perfectly visible through the resin.

“Alma,” the mother tried again, “did you touch your brother’s fossil today, yes or no?”

“Yes,” Alma admitted blushing. “When I came home earlier. But I didn’t break it!” she added quickly.

“She’s lying! She’s lying!” Tim shouted, drowning out his mother’s attempts to speak. When she tried again, Tim interrupted her once more.

“She admitted to touching my fossil, which proves she



broke it!” he continued, trying to take advantage of his sister’s predicament. “She’s always breaking and losing my stuff...”

“Be quiet, Tim,” Alma interrupted. “Can’t you tell there’s a lag? We can’t hear what Mum’s saying.”

“Let’s calm down,” the mother said, trying to sound reassuring.

She paused as she realized that the image had frozen. After a few seconds, her children’s faces began to move again, a sign that the connection was back, even if their features remained very blurred and their movements jerky.

“Tim, let your sister explain,” she added. “Alma, you said the fossil was fine this afternoon and you haven’t left the house since, is that right?”

“Exactly! I was in my room listening to music and...”

“Slow down,” the mother interrupted. “I can’t hear you very well. The connection is terrible and I have a lot of background noise.”

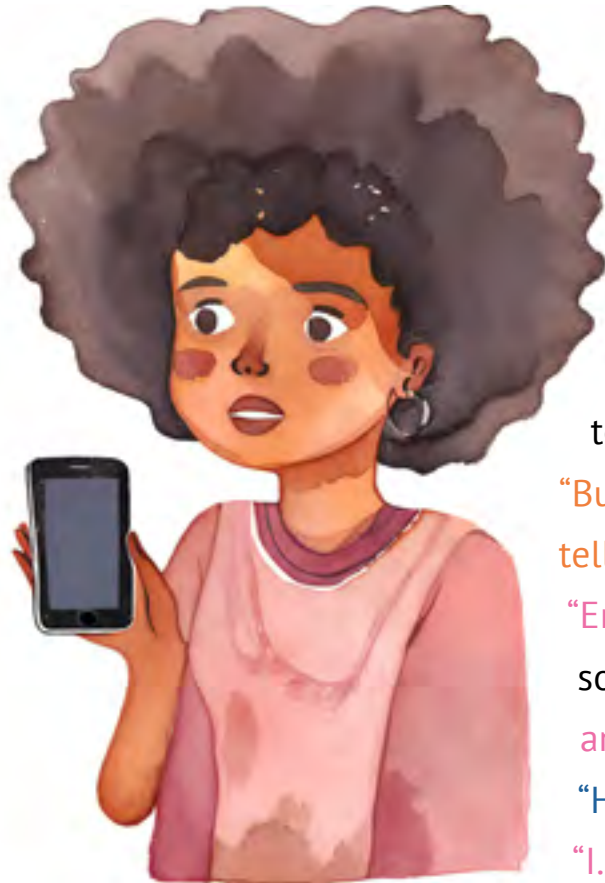
“I was in my room listening to music and texting Joan,” Alma explained.

“You can ask her yourself.”

## CHAPTER 3

# Where JOAN tries to defend the accused

With a few clicks, Alma added her friend Joan to the call with their mother. Joan’s face appeared on the screen next to the children’s mother’s face. Once the surprise of being suddenly drawn into a virtual family reunion had worn off, Joan quickly realized the gravity of the situation and that Alma needed her help. The details were unclear – Tim, Alma and their mother often talked over each other, and Joan’s phone connection was terrible. On top of that, she was walking down a busy pedestrian street, and the noise made things worse. But Joan could sense that Alma was in serious trouble, and that her mother might punish her severely. She couldn’t let her friend down.



“Tell them I didn’t break Tim’s fossil,” Alma begged.

“Er, yeah, of course not,” Joan stammered.

“She doesn’t know anything! She wasn’t even there!” Tim protested.

“But we texted,” Alma insisted. “Joan, tell them.”

“Er, yes, it’s true,” Joan said, trying to sound confident. “Alma texted me and she didn’t break your fossil.”

“How can you be sure?”

“I... I know her. She would never do anything like that.”

Joan felt her efforts weren’t enough. She couldn’t make out Alma’s mother’s expression, the video was too blurry, but she could tell that

she was getting impatient. Joan wished she could be in the room with Alma, holding her hand to reassure her and glaring at Tim to make him back down from his accusations. Perhaps she could suggest that they all sit down in the kitchen and talk things through over a cup of hot chocolate. Just as she was about to make one last attempt to defend Alma, her connection was cut. As she tried to reconnect, she received a message from Alma: *“Forget it. My mother just grounded me for a month. So unfair!!!!”*



## Chapter 4

# Where Granny Arlette Plays with Mirrors



The next day, Tim went alone to Granny Arlette's. Alma usually came with him to visit their grandmother, whom she adored, but her mother's punishment had forbidden it. It served her right, Tim thought. It would teach her to lose and break other people's things.

"A whole month?" Granny Arlette whistled when Tim told her about Alma's punish-

ment. "That's a lot, don't you think?"

"Maybe... I don't know..." Tim mumbled, sipping the apple juice his grandmother had poured for him.

"Does she often punish you for a whole month?" Granny Arlette insisted.

"Not really," Tim admitted, realising that this was the first time their mother had grounded either of them for more than a week.

"That's odd!" Granny Arlette said. "Was she very angry?"

"Hard to say," Tim admitted. "She was far away. We were talking online."

"Ah! That explains everything!"

With that, Granny Arlette got up quickly and left the room. Tim sat alone with his apple juice, puzzled by her sudden reaction and curious to see what she was up to.

A few moments later, the old lady returned with two small mirrors. She handed one to Tim, keeping the other for herself, and sat down in her lavender and hay-scented armchair. She asked Tim to stand behind the chair and hold his mirror high enough so that he could see her reflection in her own mirror. Tim looked in amusement as he could now see his



grandmother's doubly-reflected face, even though he was standing with his back to her. Granny Arlette's reflection appeared in her mirror, which in turn was reflected in Tim's. Sure, the image wasn't perfect – the mirrors were a little scratched and Granny Arlette's hands were shaking a little – but you could still see her, with her kind eyes and even a hint of her mischievous smile. Granny Arlette suggested they spend the rest of the afternoon chatting like this, which Tim thought was funny at first. But after a few minutes he asked to go back to his usual place, facing her and looking directly in her eyes.



## Chapter 5

# Where Uncle Ruben's clients are discussed

“Sorry, Granny Arlette, but it's too weird to talk to you like this! Besides, I can only see your face, but you always talk with your hands...”

“That's my Mediterranean side!” Granny Arlette laughed. “But you're right: it's much better this way. Being face to face, in each other's presence, is irreplaceable. Maybe Alma wouldn't have been punished so harshly yesterday if your mother had been in the room with you.”

“Do you really think it would have made a difference?” Tim asked in astonishment.

“No doubt about it!” Granny Arlette replied. “Imagine if we were having this conversation with those mirrors, or through a window, or with a

noisy background making it hard to hear each other, or with the risk of being interrupted by a technical glitch! It wouldn't be the same at all. For example, I wouldn't even notice that you're starting to wonder if Alma's punishment was unfair."

"You might be right..."

"Don't take my word for it,"

Granny Arlette continued. "Your



Uncle Ruben, **the lawyer**, always complains when his detained clients have remote hearings."

Look up high-lighted words in the glossary at the end!

"**Detained clients?**" Tim

asked, not quite understanding who she was referring to. He knew that Uncle Ruben worked for people suspected of crimes like burglary, but didn't understand what 'detained' meant.



"His clients who are already in prison. Sometimes **a judge** has to make a decision, like whether to release them or not. In that case, the clients can either be brought to court from prison, or the **hearing** is held **remotely**."



"What does that mean?" Tim asked.

"It means they stay in prison and talk to the judge through a screen. Just like you and your mum did yesterday."

"Why would anyone want to do that?"

"Well, firstly, to avoid having to bring them from the prison, which is sometimes a long way from the court. Meanwhile, the judge stays in the courtroom. There can also be safety reasons, especially if the detained person is dangerous. It's also faster. And it's cheaper."

"That makes sense!" Tim admitted.

"Yes, it does," Granny Arlette agreed. "But it also makes the conversation more difficult. Just like with our mirrors. Besides, your Uncle Ruben can't be in court and in prison at the same time. He has to choose. If he's with the judge, he can argue better for his client because he can use eye contact, tone of voice, all sorts of subtle cues that we don't notice, but that



may have a big impact. By being with the judge, the lawyer can be better understood and more persuasive.”

Tim thought back on the scene the day before. He had the feeling that their mother hadn't fully understood the mood in the living room. If there was one person who communicated through her looks and expressions, it was Alma. For the second time, Tim wondered if his sister's punish-

✱ ment had been **fair**. Could she have explained herself better if her mother had been there in person? He also thought about Joan's behaviour. Usually she was quick to defend the most hopeless causes, but this time she had been unable to help at all because of the poor

reception. If only she could have hugged Alma to comfort her... But what could she do from a distance? Not much. This led Tim to another thought.

“But if Uncle Ruben is with the judge, he leaves his client all alone in prison!” Tim pointed out.

“That's the problem. The prisoner also needs the presence of their lawyer. To whisper advice in their ear or just...”

“...reassure them,” Tim finished, beginning to understand that the situation was far from ideal.

“Exactly,” Granny Arlette concluded.

“So should we do? Forbid the judge from talking to Uncle Ruben's clients through a computer?”

“Not necessarily,” Granny Arlette said thoughtfully. “Sometimes it has many advantages. But if you're going to have a remote trial, you have to make sure that **the rights of the defence** are respected.” ✱

“Uncle Ruben's rights?” Tim asked in surprise.

“His clients' rights!” Granny Arlette corrected. “For example, they must be able to make themselves understood by the judge. It's also very impor-

tant that defendants understand what is going on in the courtroom, and why the judge decides one way or the other.”

“At the same time, they must also be able to take Uncle Ruben’s advice,” Tim added.

“You’re a quick learner,” Granny Arlette said with a smile.



## Chapter 6

# Where Tim unmask the culprit

That night, Tim thought long and hard about his conversation with Granny Arlette, about Uncle Ruben’s clients, and about the mirror game. When he had gotten home, Alma had glared at him before storming into her room, slamming the door. Left alone in the kitchen, Tim had sat down, staring blankly. He was so used to his sister’s constant chatter about everything and nothing, that the silent room made him feel uneasy. So, he had gone to bed early.

Later that evening, Tim heard his father come home and poke his head into his room to say good night. Tim pretended to be asleep; he didn’t

have the energy to talk. When his father went to see Alma, Tim heard her complaining again about how unfairly she had been treated. Not only



had she not broken her idiot brother's stupid fossil, but even if she had, a month's punishment was too much! Tim heard his father promise to talk to their mother when she returned home the next day to see if the punishment could be reduced. This calmed Alma down a little, and Tim felt relieved too.

Still, he couldn't sleep. Something about the whole situation didn't feel right. He tossed and turned in bed, re-playing the events of the past few days

in his mind. Alma had come home and touched his fossil. Then he, Tim, had come home and found the fossil broken. No one else had been in the house – his mother was away, his father was teaching. So it must have

been Alma who broke the fossil! Unless... Suddenly a thought struck Tim. He jumped out of bed and tiptoed down to the kitchen to check. The answer had been there all along!

The next morning was Saturday. Alma spent the morning sulking in her room while their father made lasagna – her mother's favourite dish – to celebrate her return.



As soon as his mother arrived, just before lunch, Tim rushed to give her a hug and then asked the whole family to gather in the kitchen. "I know who broke my fossil," he announced mysteriously, making Alma curious enough for her to come and listen.

"The first clue," Tim began cryptically, "was the *silence*. The silence in the kitchen when Alma wasn't there."

"If you brought us all here just to call me a chatterbox, I'm leaving!" Alma threatened as she stood up.

“Let me finish,” Tim insisted. “It’s true that you’re loud, but usually, even when you’re not in the kitchen, there’s always a little noise, a low hum.” At these words Alma and her mother both gasped, realizing what Tim was getting at. They burst out laughing, leaving the children’s father even more puzzled.



“A buzzing sound? What are you talking about?” he asked, confused.

“Maybe the second clue will help, Dad,” Tim continued. “Look at the floor.”

Everyone looked down at the kitchen floor, which was littered with a few dead leaves, crumbs and a bit of flour spilled while making lasagna.

“That’s strange,” the father remarked.

“Where’s...?” He paused, finally getting it. “Archibald! Our robot vacuum cleaner! Did it break your fossil?”

“That’s right!” Tim confirmed, pointing to Archibald, the small round robot, the size of a large pie, parked quietly in a corner of the kitchen.

The automatic vacuum cleaner was programmed to roam the house on its little wheels, picking up dust and crumbs as it went. Archibald wandered haphazardly, slipping under furniture and reaching the furthest corners of the kitchen and living room. The family had stopped paying attention to it and its low hum. When they opened Archibald’s dust drawer, they found two small pieces of amber, confirming their suspicions.

“But I thought these machines were designed to avoid obstacles, not cause damage,” the mother pointed out.

“I know who can help us understand,” Alma said. “Manuel’s mum – he’s a kid in my class – works as a programmer. Maybe she could take a look at our robot?”



## Chapter 7

# Where Archibald's mischief is explained

After examining the vacuum cleaner's microchip and memory card, Manuel's mother quickly figured out what had happened. She explained that Archibald had been updated by its manufacturer the previous week. This would enable the little robot to spot obstacles better, to avoid accidents.

"Sounds like a pretty good idea," Alma remarked.

"Excellent in principle," Manuel's mum agreed. "Unfortunately, the update wasn't perfect. When Archibald spotted the fossil's base, a technical glitch caused it to hit it. The fossil broke as it fell, and the robot treated it as rubbish."

"My precious fossil, a piece of rubbish?" Tim gasped.

"That's the issue with technical advances," Manuel's mother sighed. "They often start out with the best intentions but can have unexpected or even dangerous effects. As there was no one in the room to stop it,



Archibald tried to vacuum up the amber pieces, but they were too hard and too big, which caused another technical glitch. The robot went into 'standby' mode, returned to its base and stopped working."

"Hence the silence and the crumbs on the kitchen floor when I came home the other day!" Tim exclaimed. Turning to his sister, he added, "I am so sorry, Alma. I shouldn't have accused you so quickly."

“I forgive you this time,” Alma said with a smile. “I know how much you loved that dumb fossil.”

“All’s well that ends well!” their mother sighed with relief. “Alma, is there anything you’d like to do this afternoon, now that you’re free?”

“I’d like to go to the sports shop and pick out a new bike helmet,” Alma suggested. “And maybe we could find one for Tim too... I think he’s having trouble finding his,” she added with a wink.



THE END



## To go further...

Did you enjoy Alma and Tim's adventure? Here are some questions to help you think about what happened. Each level gets a bit more challenging, so give them a try!

### Understand

1. Why did Alma have trouble defending herself during the video call, even though Joan tried to help? How do you think Joan could have better helped her friend if they had been in the same room instead of on a video call?
2. Why was it difficult for Alma and Tim's mother to understand how they were feeling during the video call? What impact did the technical difficulties (bad connection, etc.) have on the story?
3. What does Uncle Ruben's work show about the challenges lawyers



face when they can't be in the same room as their clients during a hearing?

4. How did Tim and his family discover that the robot broke the fossil? What did they learn about using new technologies in everyday life?

### Dig Deeper

1. Do you think the problems Alma and Joan faced during the video call are similar to the challenges Uncle Ruben's clients might face during a remote hearing? How might this affect the right to a fair trial?
2. Granny Arlette explained why talking face-to-face may be easier than using technology. How could this relate to the way judges, lawyers, and clients communicate in court, as with Uncle Ruben's clients?
3. The family relied on technology to clean their house. Do you think



it is always safe to trust technology, especially in important situations like trials?

4. A technical problem led Archibald to make the wrong decision about Tim's fossil by treating it as trash. Do you think robots can sometimes make better decisions than humans, and if so, in what cases?

### Explore Big Ideas

1. Why is it important for people in court, such as judges, lawyers, and those on trial, to see each other face-to-face? How does non-verbal communication (like eye contact or body language) impact the rights of the defense?
2. How do you think technology should be balanced in the justice system to make sure it helps people but doesn't interfere with their right



to a fair trial? What limits would you suggest to avoid over-reliance on technology?

3. What risks do you think exist if courts rely too much on technology, like video calls or automated systems, for trials and hearings? Could this affect how fair a trial is or lead to harsher punishments?
4. In some countries, judges already rely on algorithms to help them take decisions. Do you think a robot could be fairer in its judgment than a human judge? Why?

# Legal Glossary

## Detention/Detained

Detention is when someone is kept in custody, like in jail or prison, while waiting for their trial or court decision. A person who is in detention is referred to as detainee, meaning they are not free to leave until the court decides what will happen next.

## Fair trial

A legal process where the rights of all parties, especially the accused, are respected, ensuring that the trial is conducted openly, without bias, and in accordance with the law. It includes the right to be heard, to have a lawyer, to present evidence, and to challenge the evidence against them, so that the final decision is just and impartial.

## Hearing

A formal meeting in court where a judge listens to evidence and arguments from both sides of a case. The judge then uses this information to make a decision about the case. A courtroom is where legal cases are heard, and decisions are made based on the law.

## Judge

The person in charge of the courtroom who listens to both sides of the case. The judge makes decisions based on the law and evidence, and ensures that the trial is fair. Judges can also decide if someone is guilty or what their punishment should be.

## Lawyer

A person whose job is to give advice about the law and represent people in court. Lawyers help their clients by arguing their case, explaining legal rules, and defending them if they are accused of a crime.

## Remote hearing

A type of court hearing where participants, including the judge, lawyers, and the person on trial, communicate through video or phone rather than being physically present in the courtroom. Remote hearings are often used when it's difficult or impractical for everyone to gather in the same place, such as due to distance, health concerns, or time constraints. Despite being remote, all the rights of the defense must still be respected to ensure a fair trial.

## Rights of the defense

Fundamental rules that ensure a person accused of a crime receives a fair trial, such as the right to remain silent or the right to legal assistance. These rights guarantee that the accused can fully explain their side of the story, access legal representation from a lawyer, and defend themselves against accusations. The rights of the defense are essential to ensure the trial process is fair, unbiased, and that the accused is not wrongfully convicted or punished.



### The researcher behind the story

## Dr. Dorris de Vocht

Dorris is an associate professor of criminal law at Tilburg University. She teaches and researches how justice systems work and how to ensure that everyone is treated fairly in court. Her focus is on procedural safeguards, which are the protections that make sure trials are just

and fair. A big part of her work also looks at new technologies and the digitalization of the legal system, exploring how these changes can improve or complicate the way justice is delivered. This story connects to her research, helping us think about how technology affects fairness in the courtroom.



### The Author of the story

## Dr. Alice Dejean de la Bâtie

Alice is an assistant professor of Criminal Law at Tilburg University. With the advice and explanations from Dorris, Alice wrote this story as part of a project aimed at making academic research more accessible to children. She believes that her colleagues' work is essential and fascinating for understanding our society and building a fairer world. For her, it's important to share this knowledge with children because they are the leaders of tomorrow. Alice is convinced that children can grasp complex ideas, as long as they are explained in simple and clear language. Do you think she is right?





## What is the Law?

This story is part of the series *Alma and Tim Learn about the Law*, inspired by the work of researchers at Tilburg University. Designed especially for young readers, it opens a window onto the fascinating world of law, justice, and human rights.

But what are law and justice exactly? Law is made up of rules that help us live together peacefully. These rules tell us what we're allowed to do and what we should avoid so that everyone feels safe and respected. Justice, in turn, makes sure that these rules are followed fairly. It helps resolve conflicts and protects those who need it, ensuring everyone is treated with respect. Through the adventures of Alma and Tim, you'll discover how these ideas of law and justice play an important role in our daily lives.

Who broke Tim's precious fossil? At first, all the evidence points to his sister Alma. Their mother, away on a dig, hands down a harsh punishment over a glitchy video call. Case closed – or is it? A curious conversation with Granny Arlette makes Tim wonder if his sister was really guilty. As Tim digs deeper, unexpected clues emerge, leading to a surprising culprit. A thought-provoking adventure

about fairness, technology, and what it truly means to be heard.

*This story is part of the series 'Alma and Tim Learn about the Law', inspired by academic research about justice, criminal law, and human rights. It includes a legal glossary and questions to help young readers explore the social issues, legal principles, and big ideas behind the story.*

