



# The Nordic Physics Tale: a travelling scientific dissemination project teaching science to children with an artistic approach

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# Plan

- 1. Context
- 2. Writing the fairytale
- 3. Practical implementation
- 4. Conclusion

# Plan

- 1. Context

- The idea
- Scientific fairytale
- Facts

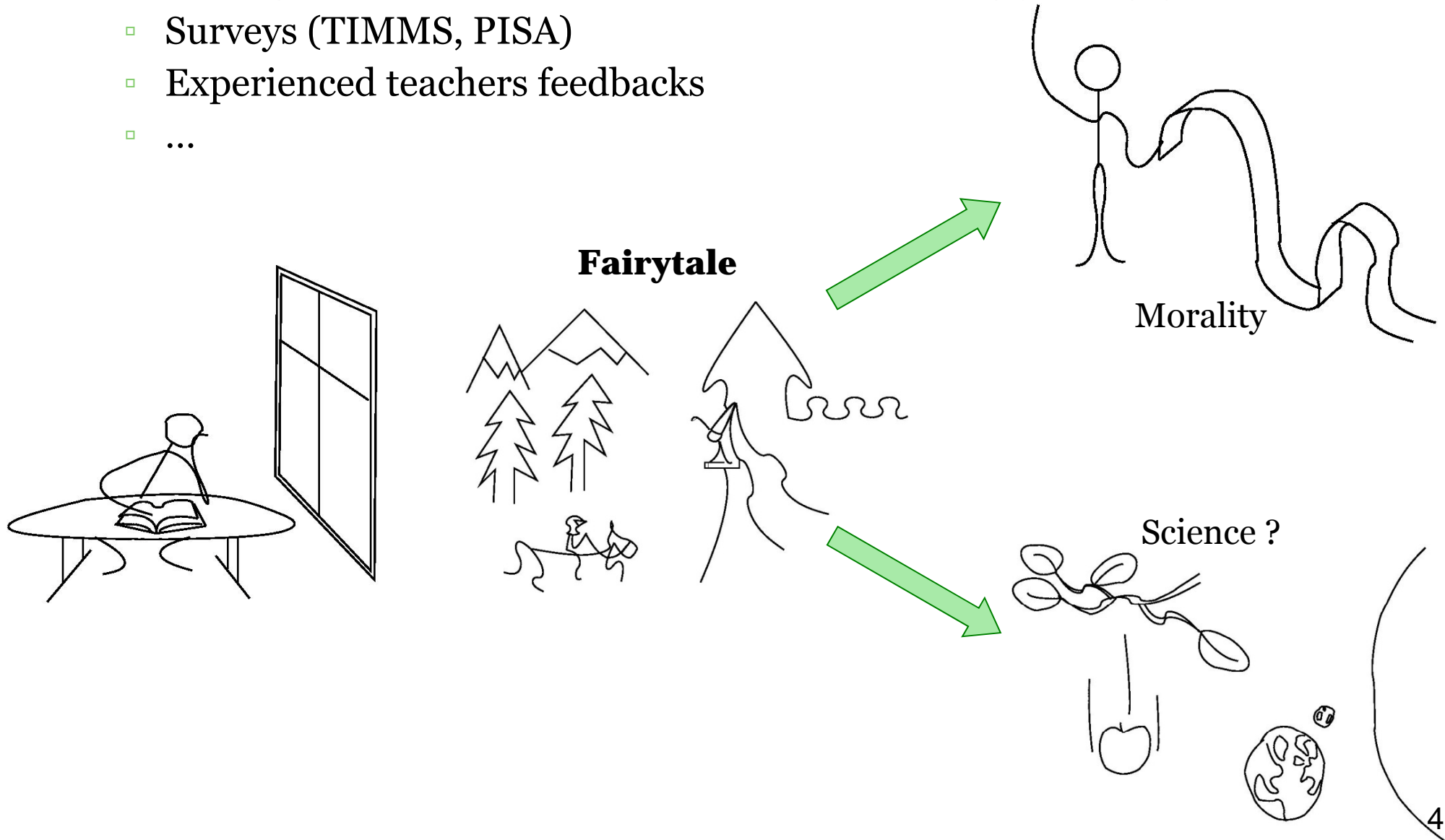
- 2. Writing the fairytale

- 3. Practical implementation

- 4. Conclusion

# The idea

- Growing lack of interest for Sciences among young generations
  - Surveys (TIMMS, PISA)
  - Experienced teachers feedbacks
  - ...

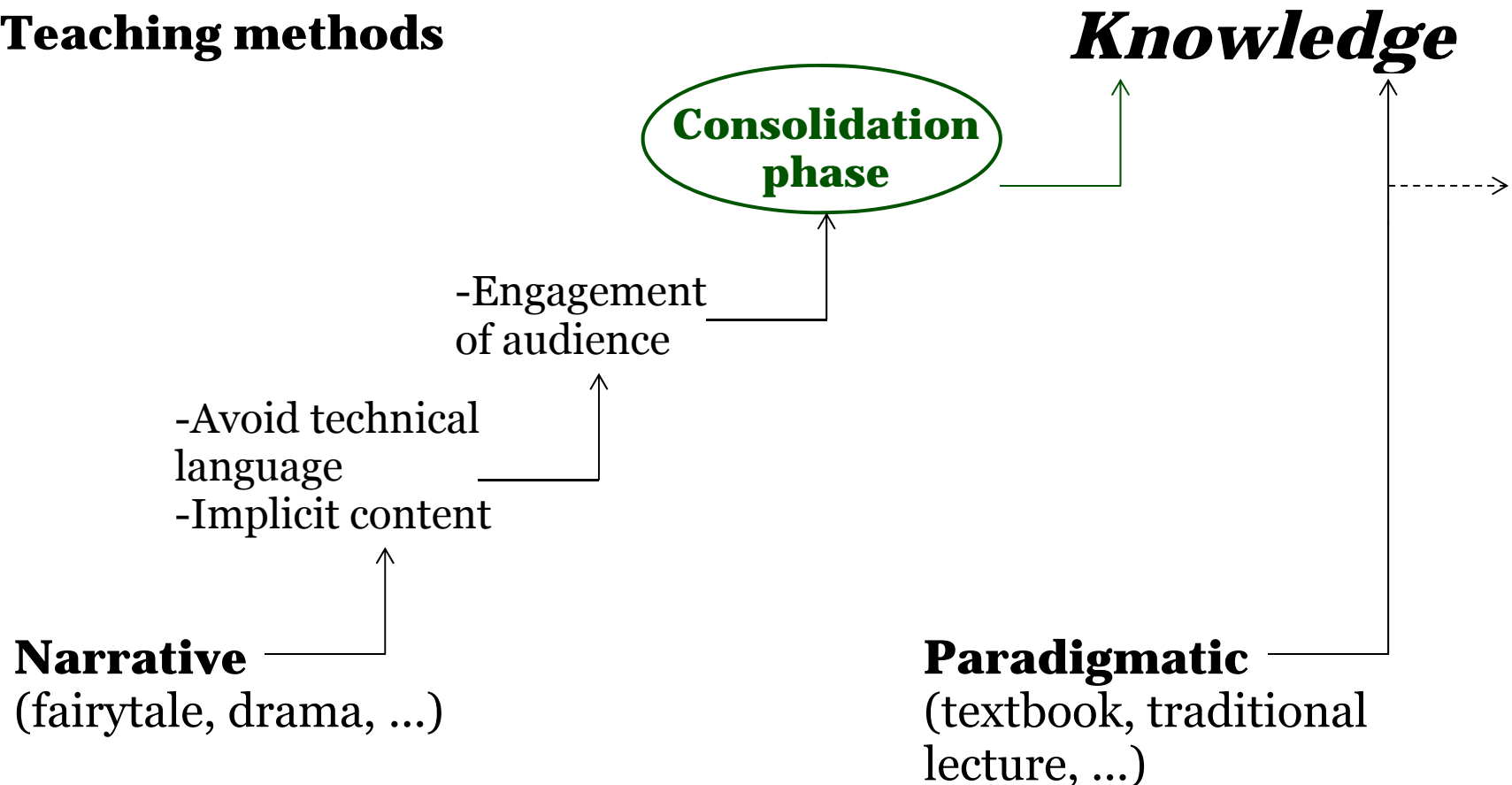


# Scientific fairytale

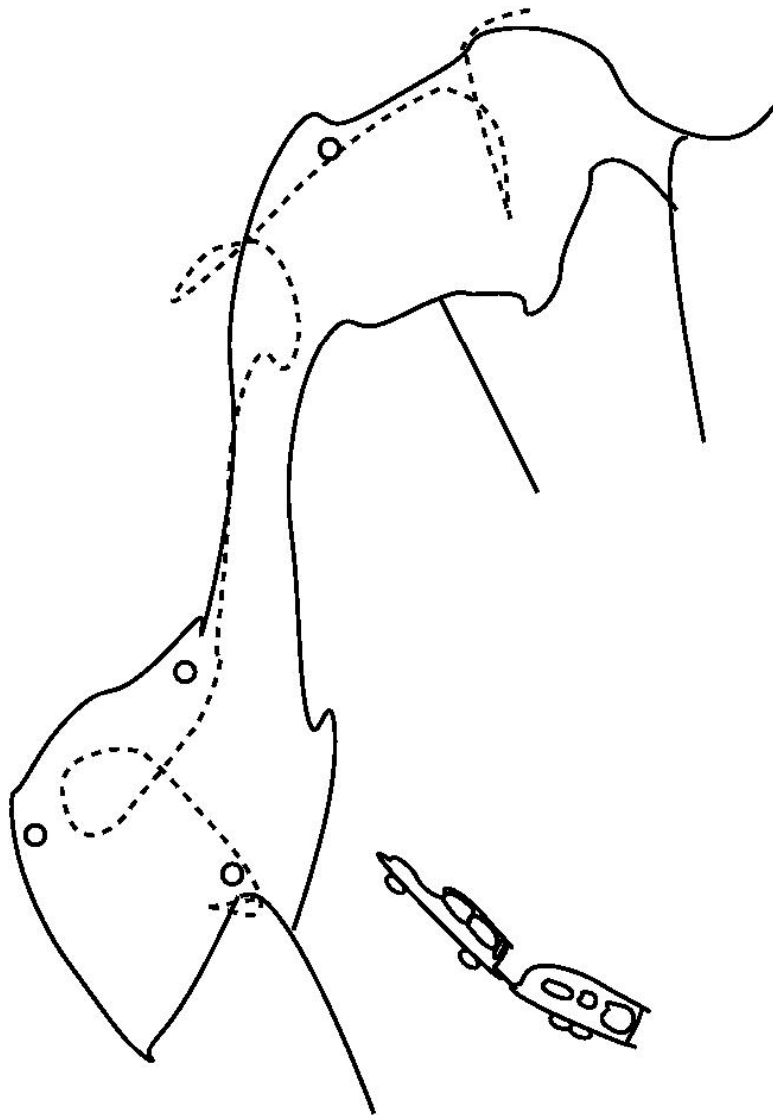
- Scientific fairytale  
/ˌsaɪənˈtɪfɪk ˈfeəriˌteɪl/

*Imaginary story featuring fantasy characters or objects, conveying morality scientific contents*

## Teaching methods



# Facts



Age of pupils	<b>7-11 years old</b>
Collaborators	<b>2</b>
Period	<b>March – June 2014</b> (+ two months preparing and closing the project)
Budget	<b>Approx. 45 k€</b>
School classes	<b>68</b>
Schools	<b>17</b>
Counties	<b>7</b>
<b>850</b> pupils have had their first physics course	



# Plan

- 1. Context
- 2. Writing the fairytale
  - The story
  - Scientific content
- 3. Practical implementation
- 4. Conclusion

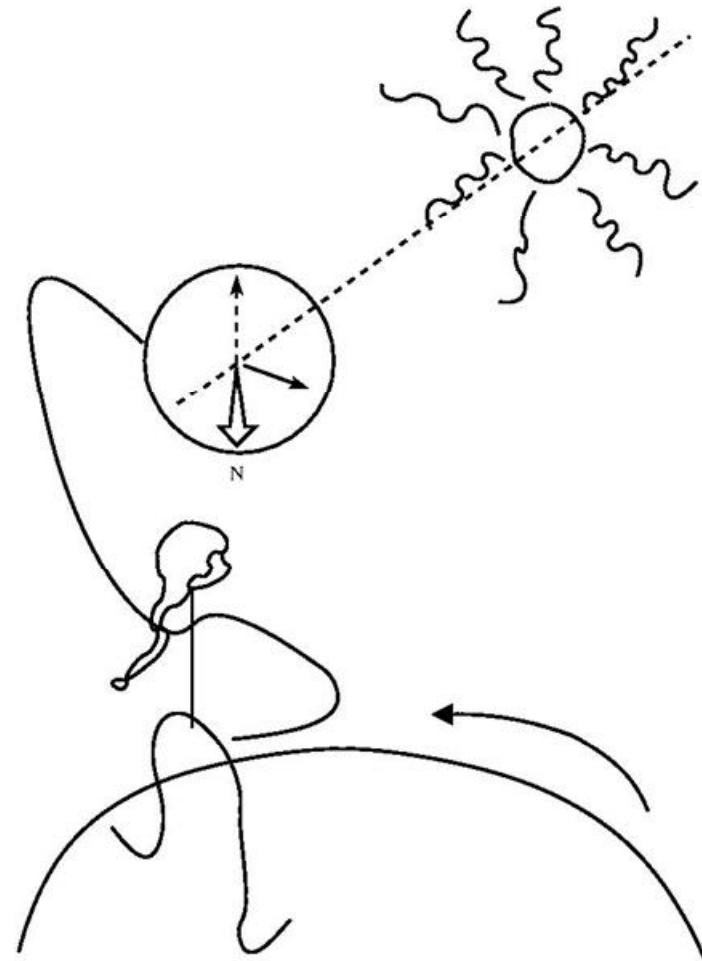
# The story

## Scene 1: The forest



# Scientific content

## The Sun-Earth system





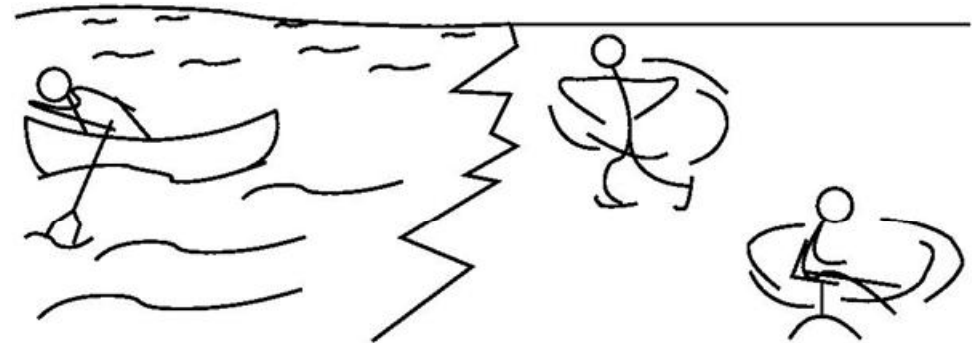
# The story

## Scene 2: The frozen lake



# Scientific content

- **Phase transition of water**  
(Liquid ↔ Solid)
- **Conservation of momentum**



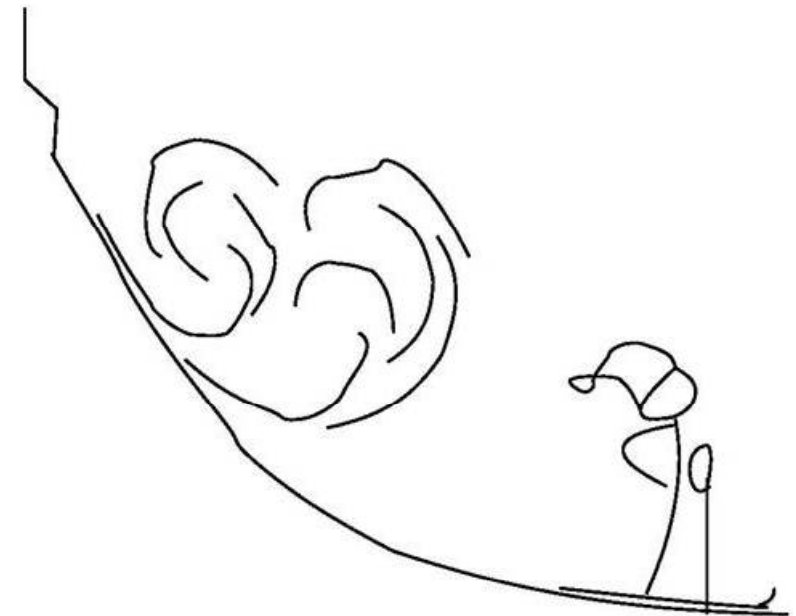
# The story

## Scene 3: The mountain



# Scientific content

## The avalanches



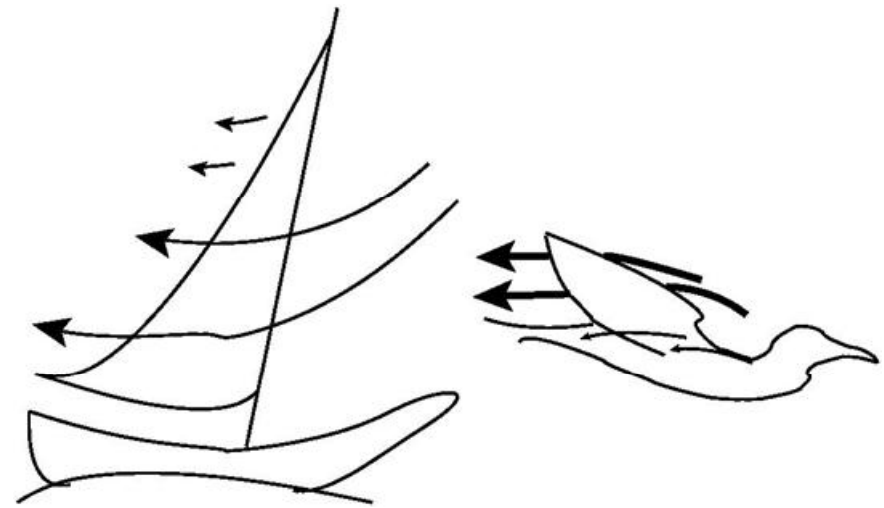
# The story

## Scene 4: The sea



# Scientific content

## Bernoulli effect



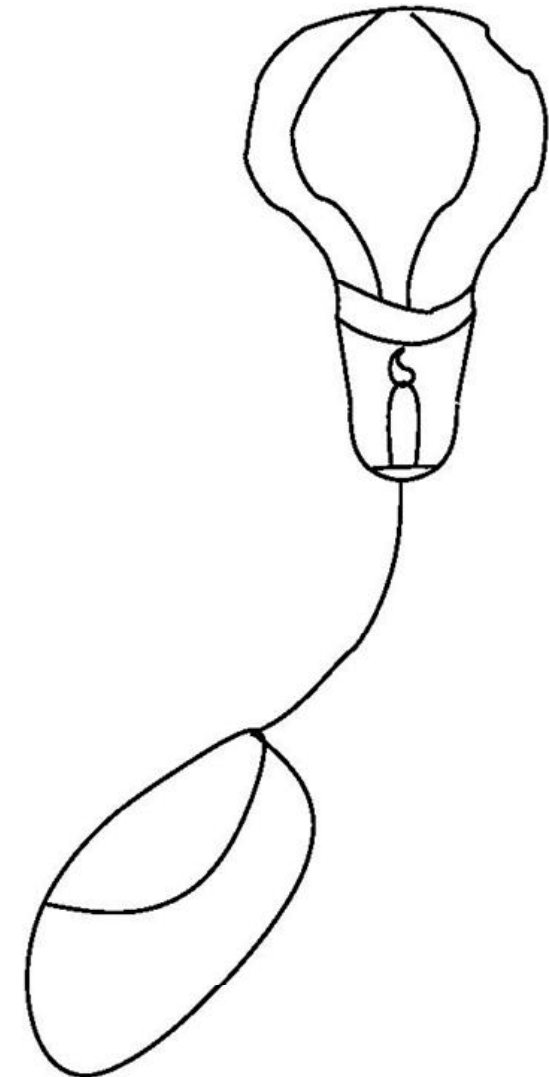
# The story

## Scene 5: The north



# Scientific content

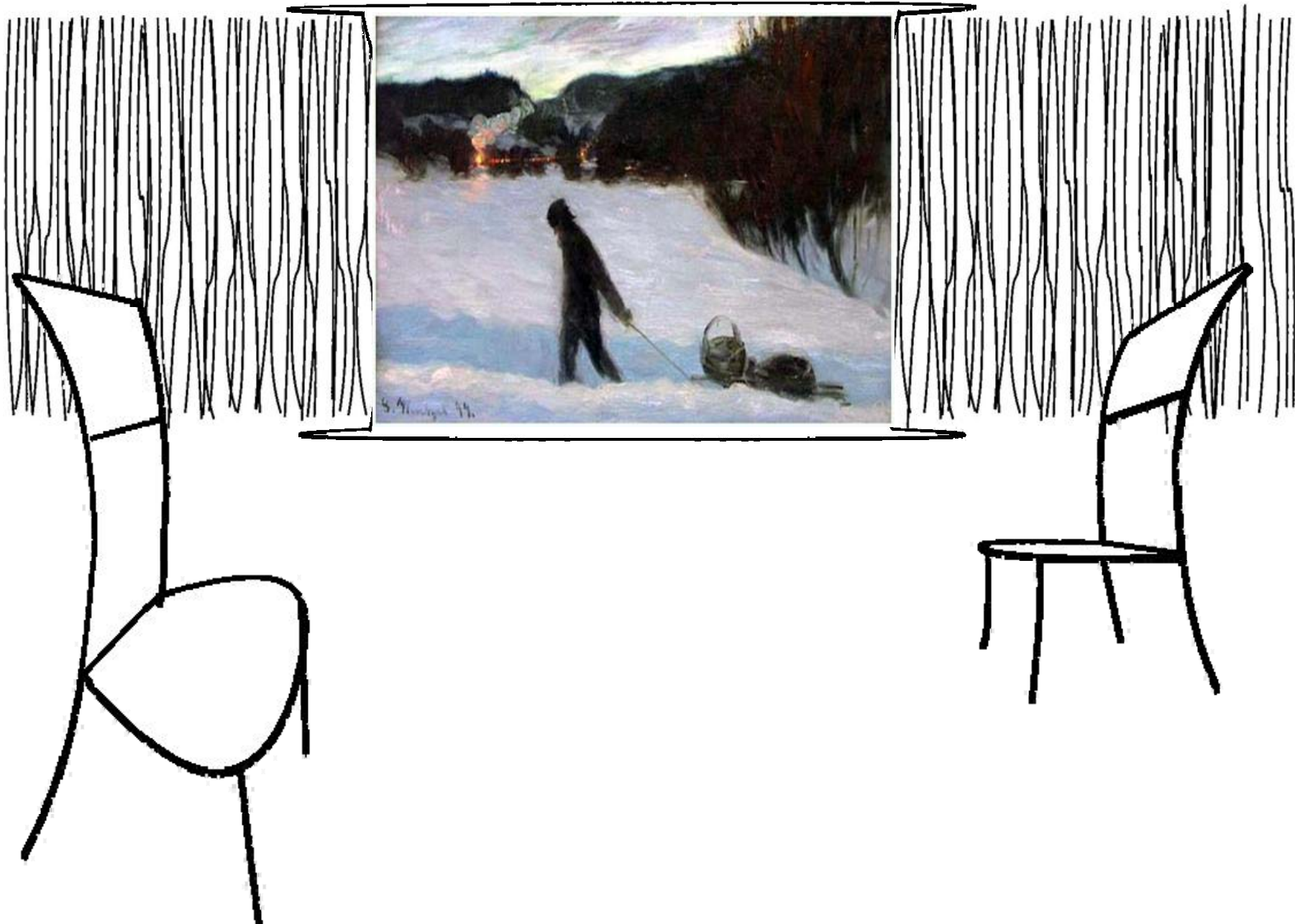
## Archimede's principle



# Plan

- 1. Context
- 2. Writing the fairytale
- 3. Practical implementation
  - Performance on stage
  - Discussion with children
  - Experimental activities on classrooms
- 4. Conclusion

# Performance



# Experimental activities

**Consolidation  
phase**



Scene 3: The mountain -> Monsters = **Avalanches**

## Scientific method

1. Observations

Snow? Avalanche?

*Types of snow*

Fresh snow, Fragmented particles, Rounded grains, Cup-shaped crystals, Wet snow

2. Modeling

Avalanche in the classroom?

Fresh snow ↔ Flour  
Cup-shaped ↔ Sugar  
Slope ↔ Shoes box

3. Experimenting



4. Concluding



# Plan

- 1. Context
- 2. Writing the fairytale
- 3. Practical implementation
- 4. Conclusion
  - Feedback forms
  - Perspectives



# Feedbacks forms

## Our questions

Which phenomena did you see?

Where can we make physical experiment?

Could you give other physical phenomena from the everyday life?

- Different phases of water
- Flying with wings with wind's help
- Stream of water

- Outside
- In the nature
- In a laboratory
- In a classroom
- At home
- **Everywhere**

- Gravity
- **Northern lights**
- **Thunder or lightning**
- **Earth quake**
- **Volcanic eruption**

## Children's answers

# Perspectives

- The competition: a physics course for polar bears
  - Engagement of the audience
  - Requires planning organization → part of the curriculum
- A teaching duty for scientists
  - Original way of teaching
  - Reducing the gap science development and society
- Development in other countries
  - Mixture of knowledge and culture

Thank you

