



香港教育大學

The Education University
of Hong Kong

Fostering Children's Creative Thinking Skills in Problem Solving through Play

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27 July 2024




Department of
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幼兒教育學系



Agenda

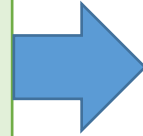
- Develop children's key competencies – use creative thinking skills to tackle problems proactively
- Foster children's creative thinking skills through problem-solving games



What are the key competencies
that we should help children develop
in order to meet future social needs?

In 2022, Google released the **Future of Education** report

- Explore the common challenges brought by global integration
- Explore the AI trends that transform our workplaces




Identified 3 key trends in education:

1. Cultivate students' global problem-solving skills
2. Equip students with the high-demand skills required for work
3. Help students develop a lifelong learning mindset

Source: Future of Education report

<https://edu.google.com/future-of-education/>



The key trends in education advocated by Google are mainly related to nurturing multi-skills in children, which include thinking, innovation, problem-solving, learning and collaboration.

Creative Thinking Skills in Problem Solving

Curiosity

- Identify problems
- Stay curious when handling and solving the problems

Persistence

- Keep identifying and exploring solution options

Flexibility

- Keep the solutions dynamic and innovative
- Find the optimal solutions based on conditions

Reflection

- Review, evaluate and reflect on plans continuously

Collaboration

- Apply collaboration skills in problem-solving
- Demonstrate communication, acceptance, consensus and understanding of other's needs

Creative Thinking Skills in Problem Solving include:



capacity to work independently

conscious to the needs and problems of people, things, and environment

able to adapt and reflect

need to work with others

stay focused and persistent in learning

Nurturing children's creative thinking skills in problem-solving



Responding to future needs of the society

Fostering Children's Creative Thinking Skills through Problem-Solving Scenarios

Problem-solving scenarios:

1. Daily life issues
2. Play-related issues
3. Scenario-based issues in picture books



Problem-solving
games

Problem-solving Game 1:

- Free play
(play-related issues)

Experiential Activity

Children want to build a “house” as a secret base

Each group is given one of the following items to build a house that can accommodate at least 1 person

- Tissue boxes
- Plastic bottles
- Plastic boxes
- Other materials...

Think carefully:

- Have you applied the following thinking skills in this activity ?
- What made you use them?

Curiosity

- Identify problems
- Stay curious when handling and solving the problems

Persistence

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Helping Children Develop Creative Thinking Skills: Strategies

Fostering children's
creative thinking skills in problem solving

Parent's
supporting strategies

- Demonstration
- Encouragement
- Effective questioning
- Provision of materials



| | |
|----------------|--|
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Helping Children Develop Creative Thinking Skills: Materials

Constructive building blocks (Examples)



Helping Children Develop Creative Thinking Skills: Materials

Loose parts (use materials at hand)



A little game:

How many types of
items did you find?

Helping Children Develop Creative Thinking Skills: Materials

Loose parts (use materials at hand)

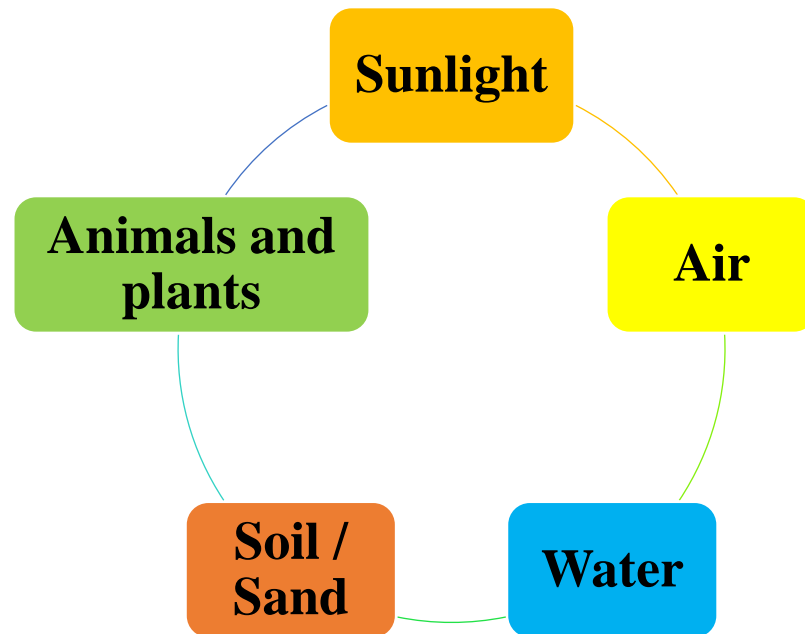


Examples:

- Metal box
- Straw
- Paper cup
- Basket
- Plastic box
- Paper box
- Chopsticks
- Toilet paper tube
- Fluffy wire
- Bag
- Coat hanger
- Fruit foam net
- Popsicle sticks
- Leaflets
- Hemp rope
- Cotton rope
- Nylon rope

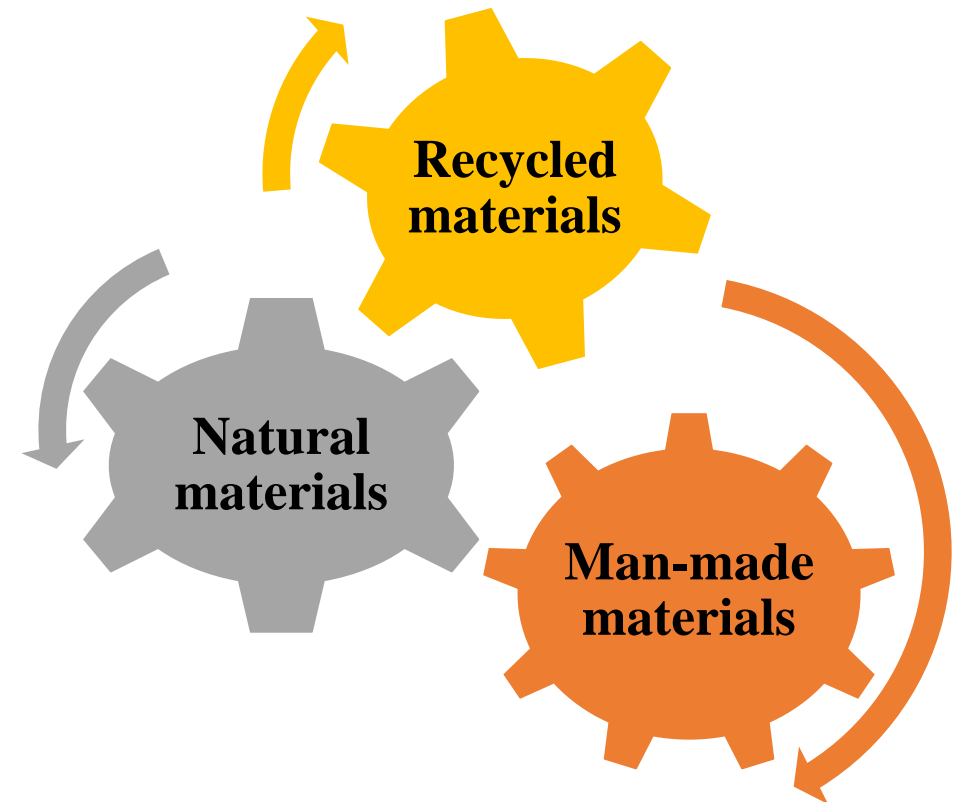
Loose parts (use materials at hand)

Natural elements
(Examples)



+

Additional parts
(Examples)



(周淑惠，2020；translated version)



Source: All photos taken and provided by the speaker

Problem-solving Game 2:

- Role-play
(Scenario-based issues in picture books)



Picture book: **DIE BRÜCKE**

Janisch, H. & Bansch, H. (2010). *Die Brücke (The Bridge)*.
Wien: Verlag Jungbrunnen.

Janisch, H., Bansch, H.著，侯淑玲主譯 (2012)：《一定要誰讓誰嗎?》(初版)，台北市，大穎文化事業股份有限公司。

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Experiential Activity

Two people meet on a very narrow bridge over the river.
How can they pass each other and cross the river?

Material:

- A long rope is placed on the ground to represent a narrow bridge

Players:

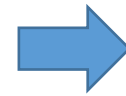
- 2 adults / 1 adult + 1 child

Experiential Activity

Two people meet on a very narrow bridge over the river.
How can they pass each other and cross the river?

The two players may act as:

- a bear and a giant
- father/mother and the child
- an old woman with difficulty walking and a child



Is there a way that both parties can cross the river at the same time?

Picture book: DIE BRÜCKE



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Think carefully:

- What strategies have you employed in this activity ? **OR**
- What strategies would you employ if you play this game with your child?

Parent's supporting strategies

- Demonstration
- Encouragement
- Effective questioning
- Provision of materials



Fostering children's creative thinking skills in problem solving

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Problem-solving Game 3:

- Constructive play
(Scenario-based issues in
picture books)

Experiential Activity

Story setting:

Current situation

- unstable bridge
- surrounded by hills of different heights



Issues faced:

The needs of man and animals:

- many villagers need to cross the river, and some need to drive as well
- many animals need to cross the river too

Janisch, H. & Bansch, H. (2010). *Die Brücke (The Bridge)*. Wien: Verlag Jungbrunnen.

Janisch, H., Bansch, H. 著，侯淑玲主譯 (2012)：《一定要誰讓誰嗎?》(初版)，台北市，大穎文化事業股份有限公司。

Experiential Activity



Use any materials
to form 3 hills

Source: Photo taken and provided by speaker

Experiential Activity

Different types of bridges



Vehicle Bridge



Pedestrian and vehicle bridge



Railway bridge



Pedestrian bridge

Source: All photos taken and provided by
The Education University of Hong Kong

Experiential Activity

Hints:

- ▶ How to achieve human-wildlife coexistence:
consider animal behavior
- ▶ How to build a stable bridge:
consider “hills of different heights”
consider weather factors

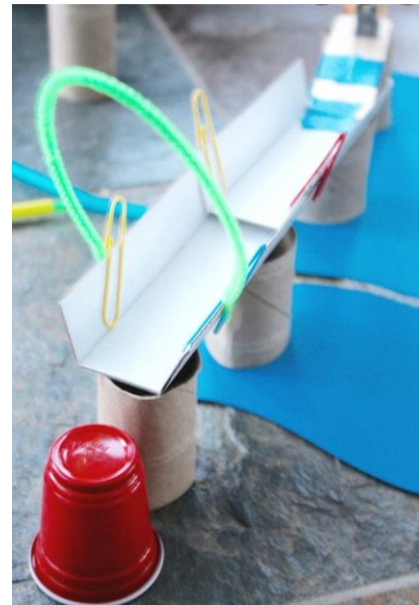
Experiential Activity

Experience now.....

- With the loose parts provided, build a stable bridge for use by both man and animals



Source:
<https://www.pinterest.com/pin/building-bridges-engineering-activity-prek-pages--428334614539912659/>



Source:
<https://littlebinsforlittlehands.com/building-bridges/>



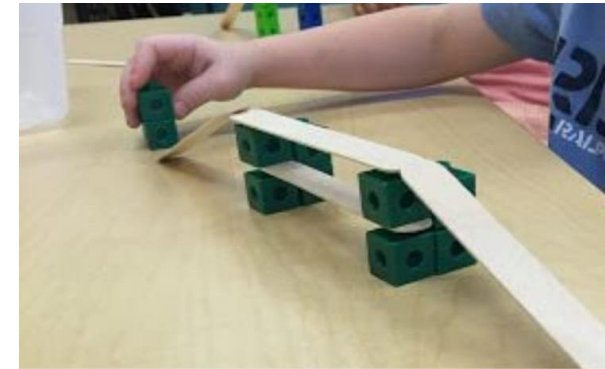
Source:
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Source:
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Source:
<https://www.pinterest.com/pin/235805730467007354/>

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Conclusion

The Importance of Play

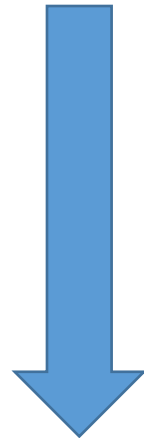
Think carefully:

What are the skills for children promoted by the games introduced today?

- Cognitive and language development
- Moral development
- Affection and social abilities development
- Physical development
- Aesthetic development

Nurturing Creative Thinking Skills in Children

Make good use of daily life scenarios / materials to provide
scenario-based games for problem-solving



- Demonstration
- Encouragement
- Effective questions
- Provision of materials

Promote children's creative thinking skills



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Q&A

Reference:

Stone-MacDonald, A., Wendell, K., Douglass, A., & Love, M. (2015). *Engaging young engineers: Teaching problem solving skills through STEM*. Baltimore, Maryland: Brookes Publishing

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