

The VentiRay game

Instructions

Duration: 40-90 min.

Players: 2-4

Age: 12+

Objective

The forest is peaceful until the VentiRay dragon awakens. Spreading radioactive particles with its harmful breath, the VentiRay turns forest animals into ghosts. Your task: save as many forest animals as you can!

Game components

Bring yourself:

- ✓ 2 dice
- ✓ pawns: 1/player

Print:

- ✓ 1 board (print on A0 or A3 size paper)
- ✓ game instructions

Print pp. 5-6 and cut out:

- ✓ 22 forest animals: fold them in half along dotted line (indicated by ✂)
- ✓ 12 gems (6/player)
- ✓ 13 resources + 2 highway blocked tokens
- ✓ 17 action cards
- ✓ 28 berries
- ✓ 1 VentiRay awakened card (round card)

Setup

1. Distribute the forest animals evenly on the board. Each section should contain 2 animals. Do not place animals in the evacuation zone.
2. Position the pawns on start.
3. Arrange the resources, the berries, and gems in the allocated areas. Shuffle all action cards and place them in the dedicated area.
4. Every player receives 600 berries.
5. The oldest player begins.

Playing the game

Round 1

1. The VentiRay is still asleep, so it is time to prepare! **Blue tiles and action cards do not apply in this round.**
2. Roll both dice and move your pawn accordingly.
3. Follow the instructions on the board. Position purchased resources in the *Protection zone*. Place purchased highways in the designated area in the *Evacuation zone*.
4. Animals can move 1 section (left or right) at a time. Each section can contain a maximum of 4 forest animals.

Origins of the game

Two employees of the Belgian Nuclear Research Centre gathered their expertise on crisis management and designed the VentiRay game. They wanted people to experience some of the difficulties that crisis managers encounter in the event of a nuclear accident. Although the game is set in a fantasy world, it entails elements of reality. Learn more about these elements in the green boxes.

The VentiRay dragon

When asleep, the VentiRay dragon is not harmful. When the VentiRay awakens, its breath spreads radioactive particles, endangering the forest animals. Players can appease the VentiRay by collecting gems.

In some ways, the VentiRay is comparable to a nuclear power plant: during normal operation, a nuclear power plant is not harmful for the environment. When an accident occurs, it can spread radioactive particles in the environment. By taking the necessary measurements, this crisis can be overcome.

Fun fact: VentiRay's name merges *ventus* (Latin: wind) and *ray* (a narrow line of light, heat, or other energy). Read the next box to learn why wind is important for crisis management.

Starting from round 2

5. Once a player crosses 'Start', the VentiRay dragon awakens. **Place the VentiRay awakened card in the middle. The blue tiles and action cards are activated.** VentiRay's breath is harmful and spreads radioactive particles. VentiRay's mouth indicates the direction of radioactive particles.
6. Roll the dice to decide the first section that is struck by VentiRay's harmful breath. **Turn VentiRay's mouth in correspondence with the total number of dots on the dice.** The forest animals that are positioned in this section turn into 'demi-ghosts'. A second hit by VentiRay's breath will turn them into ghosts.
 - ✓ To turn a forest animal in a demi-ghost, turn the card inside out, so that the animal becomes invisible.
 - ✓ To turn a forest animal into a ghost, simply take the card off the board.
7. The direction of VentiRay's breath changes when landing on the *Wind direction changes* tile. Roll the dice to determine the new wind direction and position VentiRay's mouth accordingly.
8. Be careful: the action cards contain a **VentiRay crisis card**. Once this card is drawn by one of the players, VentiRay's breath widens, affecting not only the section decided by rolling the dice, but also the neighboring sections on the left and right. This card remains active until the game ends.
9. Take action as a crisis manager:
 - a. **Protect** as many animals as you can by (see also additional instructions):
 - ✓ building shelters, caves to protect animals;
 - ✓ building a hospital to shelter or to heal demi-ghosts (fee to heal one demi-ghost: 100 berries);
 - ✓ building highways to evacuate animals via the *evacuation zone*;
 - ✓ renting a helicopter to evacuate 4 animals;
 - b. **Collect** 6 gems to appease the VentiRay.
10. When it is your turn, roll the dice and follow the instructions on the board.
11. When a player crosses *Start*, he receives 600 berries.

The importance of wind

During a nuclear accident, the weather conditions play a key role in crisis management. The wind direction for example influences the spread of the radioactive particles. For this reason, the wind direction is a key element in the VentiRay game.

Demi-ghosts and ghosts

Like the game, exposing yourself to increased levels of ionizing radiation can be harmful to your body. Although such an exposure will not turn you into a (demi-)ghost, it can have a long-lasting impact on your health that may require medical attention. The game offers different ways to deal with radiation exposure: you can increase distance from the VentiRay by evacuating forest animals or you can build shelters, which act as barriers against the VentiRay. A third principle of radiation protection relies on limiting or minimizing the time of exposure to radiation. To stimulate you to take action, we included the *VentiRay crisis* action card, which expands the impact of VentiRay's breath.

Sheltering vs. evacuation

In the case of a nuclear accident, crisis managers must decide (amongst others) whether to evacuate or to shelter people, who are close to the nuclear reactor. This is however not an easy decision, as moving people to a safer location, might cause stress, and requires a detailed monitoring of the situation in real-time. Like in a real event, players also need to decide whether to move, to shelter or to evacuate the animals.

Winning and losing the game

Evacuate all the forest animals OR appease the VentiRay dragon before all forest animals turn into ghosts.

Playing with one team?

Count per player the number of animals saved and the number of collected gems. For each evacuated animal, you receive 2 points. A demi ghost counts for 1 point. The forest animals you were able to protect on the board by building a shelter, cave or hospital also count for 2 points. You receive 2 points per gem collected.

Playing with multiple teams?

Play this game in class with multiple teams, each playing with their own board. Who manages to save the most forest animals? You receive 2 points for each animal saved. You gain 4 points for each gem collected. A demi-ghost counts for 1 point.

Additional instructions

- ✓ The **berries are allocated to players individually**. Berries can only be pooled when a player draws the *Share berries* action card.
- ✓ When purchasing an item, you return the spent berries back in the berry bank. Once the berry bank runs out of berries, it remains empty until a player restocks it (by for example purchasing an item).
- ✓ Unless otherwise stated, actions cards are placed back in the action card pile.
- ✓ Highways allow you to move forest animals into the evacuation zone. **Without highways, forest animals cannot enter this zone**. Players can purchase highways. When animals are moved in the evacuation zone, players can remove them from the board.
- ✓ When a player hits '**Traffic jam**', the traffic jam applies to all players and affects highways that are already built. The player who landed on the 'Traffic jam' tile, may use the 'Traffic jam token' to remember he has to cross start to remove the traffic jam.
- ✓ A helicopter can be positioned anywhere in the protection zone. It allows you to evacuate a maximum of 4 forest animals from one section.
- ✓ Building shelters, caves and hospitals protects and delays forest animals from turning into (demi-)ghosts. However, be careful: it only slows down the process. When the VentiRay hits the area a second time, the animals turn into demi-ghosts. After 3 times the forest animals turn into ghosts.
- ✓ The hospital is placed in the protection area and acts as a shelter. To heal demi-ghosts in a hospital, pay a fee of 100 berries/demi-ghost.
- ✓ Caves are cheaper, but are not built as sturdy as a shelter, so there are more likely to collapse (see action cards).

An example of the game



Picture 1. Set-up of the game at the start



Picture 2. Snapshot while playing the game: VentiRay awakened card in the middle, highways are open, shelters and caves built in the protection zone, several animals have been evacuated.



Picture 3. Snapshot of two forest animals and two demi-ghosts. To turn forest animals into demi-ghosts, flip the paper inside out.

Variation

Forest animals turn into ghosts after one hit by VentiRay's breath.

Find out more about radiation protection!

The VentiRay game is part of a study pack on the Fukushima nuclear accident. This study pack includes information on the Fukushima nuclear accident, its impact on society, radiation protection, and citizen science.

Interested in learning more? You can find the study pack here: <https://www.sckcen.be/en/study-pack-life-after-fukushima>.

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17 Action cards

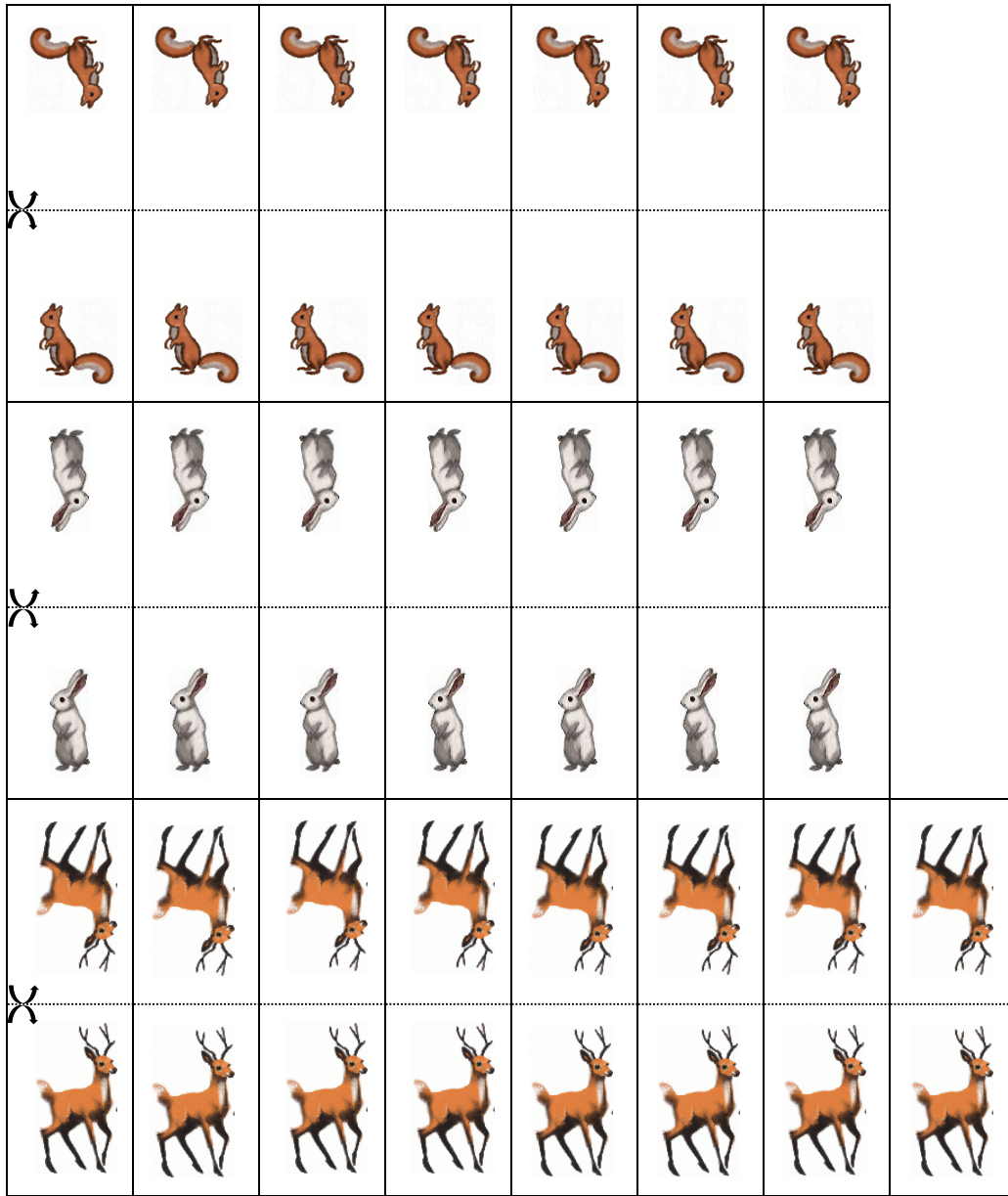
<p>Action card</p>  <p>Share berries</p> <p>Share berries with one other player. Keep this card until you will use it. Resources purchased with this card, become shared property.</p>	<p>Action card</p>  <p>Share berries</p> <p>Share berries with one other player. Keep this card until you will use it. Resources purchased with this card, become shared property.</p>	<p>Action card</p>  <p>Caves collapsed</p> <p>Caves in the protection zone are no longer available. Place the cave(s) upside down in the protection zone.</p>	<p>Action card</p>  <p>Caves collapsed</p> <p>Caves in the protection zone are no longer available. Place the cave(s) upside down in the protection zone.</p>	<p>Action card</p>  <p>Caves collapsed</p> <p>Caves in the protection zone are no longer available. Place the cave(s) upside down in the protection zone.</p>	<p>Action card</p>  <p>Shelters collapsed</p> <p>Shelters in the protection zone are no longer available. Place the shelter(s) upside down in the protection zone.</p>
<p>Action card</p>  <p>Purchase resource</p> <p>Purchase an item available in the resource or gem bank. The price of each resource is mentioned on the board. Place this card back in the action card pile, if you are unable to purchase a resource.</p>	<p>Action card</p>  <p>Purchase resource</p> <p>Purchase an item available in the resource or gem bank. The price of each resource is mentioned on the board. Place this card back in the action card pile, if you are unable to purchase a resource.</p>	<p>Action card</p>  <p>Animals ate 300 berries</p> <p>The forest animals were hungry and ate berries. Return 300 berries to the berry bank.</p>	<p>Action card</p>  <p>Animals ate 200 berries</p> <p>The forest animals were hungry and ate berries. Return 200 berries to the berry bank.</p>	<p>Action card</p>  <p>Receive 300 berries</p> <p>You stumbled upon a bush with many extra berries. Receive 300 berries from the berry bank.</p>	<p>Action card</p>  <p>Receive 200 berries</p> <p>You stumbled upon a bush with many extra berries. Receive 200 berries from the berry bank.</p>

<p>Round 2 ≤</p> <p>Action card</p>  <p>Wind forecast: Wind will blow towards section 2.</p> <p>When a player lands on a 'wind direction changes' tile, you know which direction the wind will blow! Keep it with you until someone strands on the 'Wind direction changes' tile.</p>	<p>Round 2 ≤</p> <p>Action card</p>  <p>Wind forecast: Wind will blow towards section 4.</p> <p>When a player lands on a 'wind direction changes' tile, you know which direction the wind will blow! Keep it with you until someone strands on the 'Wind direction changes' tile.</p>	<p>Round 2 ≤</p> <p>Action card</p>  <p>Wind forecast: Wind will blow towards section 10.</p> <p>When a player lands on a 'wind direction changes' tile, you know which direction the wind will blow! Keep it with you until someone strands on the 'Wind direction changes' tile.</p>	<p>Round 2 ≤</p> <p>Action card</p>  <p>Wind forecast: Wind will blow towards section 12.</p> <p>When a player lands on a 'wind direction changes' tile, you know which direction the wind will blow! Keep it with you until someone strands on the 'Wind direction changes' tile.</p>	<p>Round 2 ≤</p> <p>Action card</p>  <p>VentiRay crisis</p> <p>VentiRay's breath reaches wider than before! Each time the wind direction changes, the sections left and right are also affected. Place this card visibly on the board. This card is valid until the end of the game.</p>
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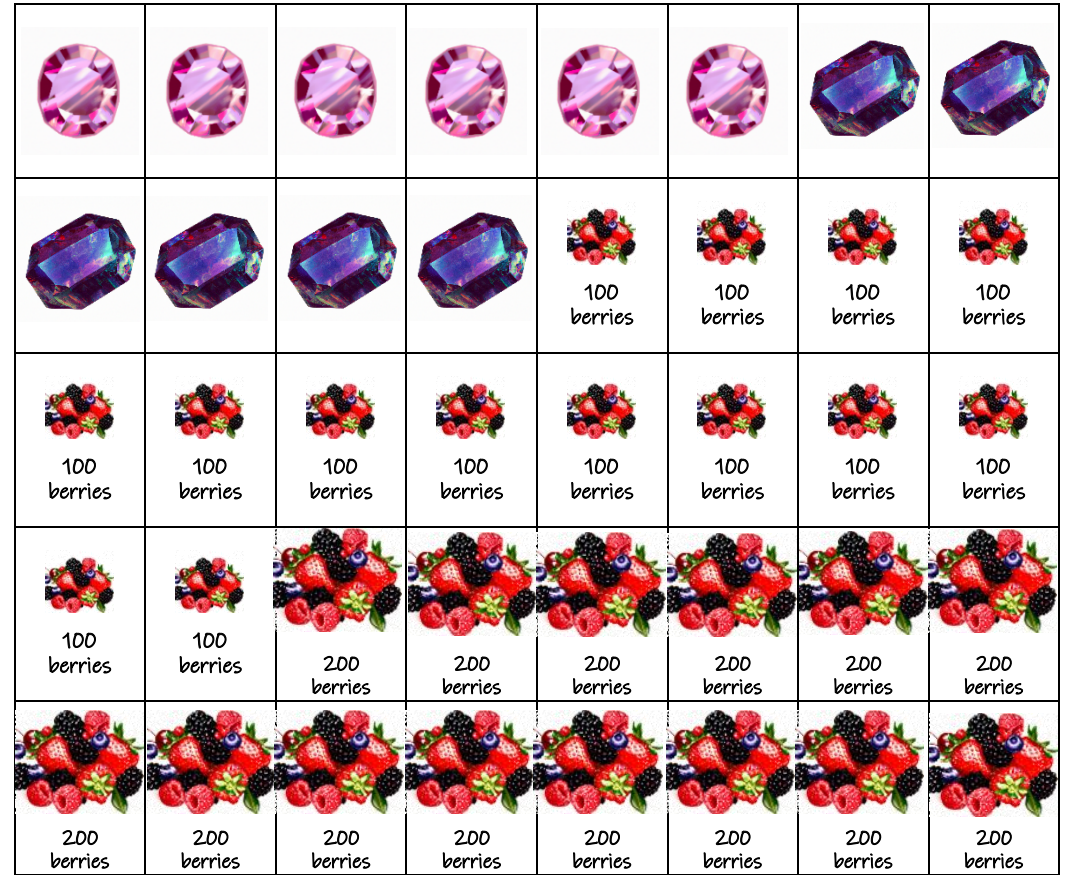
13 resources

														
Cave	Cave	Cave	Cave	Shelter	Shelter	Shelter	Shelter	Highway	Highway	Helicopter	Hospital	Hospital	Traffic jam token	Traffic jam token

22 Forest animals: cut and fold on dotted line



12 gems & 28 berries



1 VentiRay awakened card:

