

**Conclusion of the Opinion Survey among High School Students  
In the Topic of Radiation Knowledge  
September 2002  
Office of Atoms for Peace, Ministry of Science and Technology**

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**1. Are you interested in these following topics or not? Select three that you are most interested in.**

**Result**

- No. 1 Their own life in the future**
- No. 2 Science and High Technology**
- No. 3 Energy and Environments**
- No. 4 Lifestyle in School and Friends
- No. 5 Medical Science and Public Health
- No. 6 Family Life
- No. 7 Cultures and Sports
- No. 8 Political Subjects / Country Administration
- No. 9 Population and Food
- No. 10 Diplomacy and Regional Controversy

**2. How are you informed with news about science and technology, such as, Natural Phenomenon, Human Life, and Computer? You can choose more than 1 answer.**

**Result**

- No. 1 Television and Radio**
- No. 2 Newspaper**
- No. 3 Internet**
- No. 4 Teachers / Professors
- No. 5 Textbooks
- No. 6 Friends
- No. 7 Science Magazines and Books
- No. 8 Exhibitions, Seminars, Activities
- No. 9 Family Members (Father, Mother, Brothers and Sisters)
- No. 10 Comic Books and Cartoons
- No. 11 Monks and Religious Preachers (Temples, Churches, Mosques)

**3. Are the following explanations about science and technology true or false? Choose 1 answer in each explanation.**

- (1) The temperature at the Earth core is very hot.

**Result**

- |               |                         |
|---------------|-------------------------|
| <b>88.33%</b> | <b>Answer 'Correct'</b> |
| 8.11%         | Answer 'Wrong'          |
| 8.55%         | Answer 'Do not know'    |

- (2) All materials with radiation are human made.

**Result**

- |               |                       |
|---------------|-----------------------|
| 7.66%         | Answer 'Correct'      |
| <b>82.55%</b> | <b>Answer 'Wrong'</b> |
| 9.80%         | Answer 'Do not know'  |

(3) Most of Oxygen in the air is synthesized from green plants.

**Result**

<b>67.40%</b>	<b>Answer 'Correct'</b>
23.52%	Answer 'Wrong'
9.07%	Answer 'Do not know'

(4) Laser is concentration of sound waves.

**Result**

10.78%	Answer 'Correct'
<b>50.48%</b>	<b>Answer 'Wrong'</b>
38.74%	Answer 'Do not know'

(5) Electron is smaller than Atom.

**Result**

<b>79.17%</b>	<b>Answer 'Correct'</b>
14.15%	Answer 'Wrong'
6.68%	Answer 'Do not know'

(6) The fact that controls a child's sex is father's gene.

**Result**

<b>50.05%</b>	<b>Answer 'Correct'</b>
36.41%	Answer 'Wrong'
13.54%	Answer 'Do not know'

(7) The important reason that makes the Earth hotter is Freon gas discharge.

**Result**

33.39%	Answer 'Correct'
19.95%	Answer 'Wrong'
<b>46.66%</b>	<b>Answer 'Do not know'</b>

**4. Are you interested in the topic of radiation? Choose 1 answer.**

**Result**

<b>77.59%</b>	<b>A little</b>
13.32%	A lot
9.09%	Not at all

**5. How much do you understand the definition of "radiation"? Choose 1 answer.**

**Result**

<b>82.92%</b>	<b>Understand a little</b>
12.00%	Understand and be able to explain to other people
5.08%	Do not understand at all

**6. When you hear the word "radiation", what do you think of according to the following topics? Choose 1 answer.**

(1) Utility

**Result**

<b>57.82%</b>	<b>Agree</b>
31.48%	Agree a little

6.01%	No comment
4.33%	Still suspicious
0.55%	Disagree

(2) Trend for Future Utility

<b>Result</b>	
<b>72.43%</b>	<b>Agree</b>
19.15%	Agree a little
5.14%	No comment
3.10%	Still suspicious
0.18%	Disagree

(3) Familiarity

<b>Result</b>	
10.40%	Agree
<b>37.30%</b>	<b>Agree a little</b>
28.42%	No comment
14.03%	Still suspicious
10.21%	Disagree

(4) Capability to be controlled

<b>Result</b>	
26.82%	Agree
<b>34.99%</b>	<b>Agree a little</b>
14.21%	No comment
19.27%	Still suspicious
4.71%	Disagree

(5) Danger

<b>Result</b>	
<b>68.18%</b>	<b>Agree</b>
21.12%	Agree a little
4.63%	No comment
4.81%	Still suspicious
1.25%	Disagree

(6) Strangeness

<b>Result</b>	
15.60%	Agree
25.27%	Agree a little
<b>28.72%</b>	<b>No comment</b>
10.37%	Still suspicious
20.04%	Disagree

(7) Mystery

<b>Result</b>	
20.04%	Agree
22.11%	Agree a little
<b>26.90%</b>	<b>No comment</b>
13.45%	Still suspicious

17.51% Disagree

**7. When you hear the word “radiation”, what do you think of? You can choose more than 1 answer.**

**Result**

- No. 1 X-Ray
- No. 2 Nuclear Power Plant
- No. 3 Cancer Treatment
- No. 4 Nuclear Bomb at Hiroshima and Nagasaki
- No. 5 Radioactive Residue
- No. 6 Food Radiation
- No. 7 Radiation Perception
- No. 8 Madame Koori
- No. 9 Plant Mutation
- No. 10 White Blood Cancer
- No. 11 Accident at Chernobyl Nuclear Power Plant

**8. The following messages are some definitions of “radiation”. Choose one that is most similar to what you think.**

- (1) Materials with radiation originate naturally since the birth of the Earth.

**Result**

<b>59.72%</b>	<b>Yes</b>
20.59%	No
19.70%	Do not know

- (2) The intensity of radiation that has been spread from the origin will not change through the time.

**Result**

15.44%	Yes
<b>65.93%</b>	<b>No</b>
18.63%	Do not know

- (3) Do you believe that general food has radiation?

**Result**

<b>42.07%</b>	<b>Yes</b>
23.47%	No
34.46%	Do not know

- (4) The direction of radiation’s beam can change if it is windy.

**Result**

15.494%	Yes
<b>59.27%</b>	<b>No</b>
25.25%	Do not know

- (5) The characteristics of natural radiation and synthetic one is different.

**Result**

<b>48.39%</b>	<b>Yes</b>
23.39%	No
28.21%	Do not know

(6) Human body has very low radiation spread all the time.

**Result**

<b>56.99%</b>	<b>Yes</b>
8.28%	No
34.73%	Do not know

**9. At this moment there is radiation utility in a lot of fields. Do you have any knowledge about the following topics? Choose 1 answer in each topic.**

(1) Radiation usage to improve and mutate the strains of rice, wheat, soy, flowers, etc.

**Result**

5.16%	Well
<b>42.08%</b>	<b>Fairly</b>
28.00%	A little
24.76%	Not at all

(2) Radiation usage to examine human health and inner organs.

**Result**

15.14%	Well
<b>64.44%</b>	<b>Fairly</b>
16.29%	A little
4.14%	Not at all

(3) Radiation usage to separate ingredients and eliminate toxins in the air from industrial factories' smoke.

**Result**

3.24%	Well
21.56%	Fairly
30.15%	A little
<b>45.05%</b>	<b>Not at all</b>

(4) Radiation usage to halt growth in potato, onion, and garlic.

**Result**

7.22%	Well
<b>31.65%</b>	<b>Fairly</b>
<b>31.48%</b>	<b>A little</b>
29.65%	Not at all

(5) Radiation usage for Cancer treatment.

**Result**

23.50%	Well
<b>53.62%</b>	<b>Fairly</b>
18.90%	A little
3.98%	Not at all

(6) Radiation usage to disinfect medical tools, such as, syringes, cottons, bandages.

**Result**

11.68%	Well
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<b>35.57%</b>	<b>Fairly</b>
32.08%	A little
20.66%	Not at all

(7) Radiation usage to investigate travelers' baggages at the airport.

<b>Result</b>	
21.55%	Well
<b>52.12%</b>	<b>Fairly</b>
17.58%	A little
8.75%	Not at all

(8) Radiation usage to prevent damage that may happen with plants and pets by sterilizing pests.

<b>Result</b>	
6.08%	Well
<b>32.82%</b>	<b>Fairly</b>
30.76%	A little
30.33%	Not at all

(9) Radiation usage to measure thickness of steel plate in iron factories.

<b>Result</b>	
7.33%	Well
31.51%	Fairly
<b>33.10%</b>	<b>A little</b>
28.07%	Not at all

(10) Radiation usage to examine statues and pictures that are culturally valuable without damage.

<b>Result</b>	
11.37%	Well
<b>32.86%</b>	<b>Fairly</b>
28.63%	A little
27.14%	Not at all

(11) Radiation usage to analyze small toxins in the air.

<b>Result</b>	
4.19%	Well
19.86%	Fairly
34.82%	A little
<b>41.14%</b>	<b>Not at all</b>

(12) Radiation usage to produce the heat insulator covering electric wire.

<b>Result</b>	
4.51%	Well
20.60%	Fairly
27.41%	A little
<b>47.48%</b>	<b>Not at all</b>

**10. See the picture No. 1 in the attached document.**

A. Which sign is well known and widely used internationally to show that the food has been radiated? Choose 1 sign.

**Result**

16.97%	Choose the picture No. 1
20.83%	Choose the picture No. 2
<b>56.10%</b>	<b>Choose the picture No. 3</b>
6.10%	Choose the picture No. 4

B. Which picture is the symbol showing danger from radiation?

**Result**

4.16%	Choose the picture No. 1
<b>76.69%</b>	<b>Choose the picture No. 2</b>
6.05%	Choose the picture No. 3
13.10%	Choose the picture No. 4

**11. The picture No. 2 in the attached document shows the results of radiation utility in medical branch. Choose 1 answer that is consistent with A. and B.**

A. Photo of organs injected with radiation substance into a body.

**Result**

21.87%	Choose the picture No. 1
<b>60.18%</b>	<b>Choose the picture No. 2</b>
17.96%	Choose the picture No. 3

B. Photo of organs from X-Ray Computer (CT)

**Result**

22.67%	Choose the picture No. 1
24.87%	Choose the picture No. 2
<b>52.46%</b>	<b>Choose the picture No. 3</b>

**12. What do you want to know about “radiation”? You can choose as many answers as you want.**

**Result**

- No. 1 Radiation amount that will affect health**
- No. 2 Medical utility
- No. 3 Radiation usage in food
- No. 4 Measures of safety administration
- No. 5 Measures in case of accidents
- No. 6 Industrial utility
- No. 7 Appliances that use radiation
- No. 8 Control Measures according to the laws
- No. 9 Plant improvement and mutation with radiation
- No. 10 The most advanced research branch
- No. 11 No special interest in any case

**13. What kind of energy origin do you think Thailand should have in the future?**

**Result**

<b>46.64%</b>	<b>Solar energy</b>
27.65%	Nuclear energy
13.09%	Firewood and agricultural residues, such as, husk, straw

7.79%	Oil and gas
4.83%	Coal

**14. What does "Nuclear" mean?**

**Result**

<b>54.04%</b>	<b>Origin of Energy</b>
19.05%	A branch of fundamental science
15.87%	Weapons, bombs
9.07%	Dangerous material
1.97%	Cartoon story



**Personal Data****1. Sex**

66.37%	Male
33.63%	Female

**2. Age**

0.09%	15 years
4.14%	16 years
66.49%	17 years
28.48%	18 years
0.79%	19 years

**3. Do you like to study any subjects concerning with science?**

28.97%	A lot
<b>60.27%</b>	<b>Fairly</b>
10.76%	Do not like

**4. Have you ever learnt about “radiation” or “radioactive” in your school?**

<b>87.11%</b>	<b>Yes</b>
12.89%	No

**5. Have you ever visited any university, research institute, or Public Relations Pavilion to study about “radiation”?**

32.39%	Yes
<b>67.61%</b>	<b>No</b>

**6. Have you ever had an X-Ray treatment?**

<b>68.12%</b>	<b>Yes</b>
31.88%	No

**7. In your family, does anyone use to have a radiation treatment?**

35.64%	Yes
<b>64.36%</b>	<b>No</b>

**8. Have you ever visited these following sites? You can choose more than 1 answer if you want.****Result**

<b>No. 1</b>	<b>Museums that have exhibitions about science and technology</b>
No. 2	Zoos or botanical gardens
No. 3	Public libraries
No. 4	Science Research Institutes
No. 5	Art museums
No. 6	Power Plants