iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** IX **Month of publication:** September 2022

DOI: https://doi.org/10.22214/ijraset.2022.46867

www.ijraset.com

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue IX Sep 2022- Available at www.ijraset.com

Development and Validation of Interactive Multimedia Package on Disaster Management Learning Activities

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I. INTRODUCTION

India is one of the natural disaster prone country .Due to large population growth and migration of people to the urban areas .the country has increasing vulnerability to the socio economic impacts of extreme weather like flood, droughts, cyclones etc.

In 2004, nearly 250000 people died due to deadliest disaster, Tsunami. On December 15, 2011 Thane cyclone occurred and destroyed more than 1000 hectares of agriculture lands. Simultaneously flood has occurred in Cuddalore, Karaikal, Chennai and Pondicherry.in November 2020, very Severe Cyclonic Storm Nivar a tropical cyclone which brought severe impacts to portions of Tamil Nadu and Andhra Pradesh. If one has awareness on tsunami, cyclone and floods, one could take action to minimize the loss of lives and possessions which includes safety and security of life. Knowledge about disaster, disaster preparedness and disaster management plays a vital role in minimizing the effects of disaster.

From the research studies, it has been observed that children are mostly affected by natural hazards and them suffering both physically and mentally. Teaching Disaster management in the schools, colleges and universities will make the youth to aware about the various disasters and it will make them to face the disasters or any crisis with their knowledge, self-confidence and survival skills.

Hence the disaster management is important for the School children to safeguard themselves and they can also impart it to family, society and others in future. In the view of the above, the investigator has decided to develop and validate activity based Interactive Multimedia package on Disaster Management Learning Activities for school students and it is entitled as "DEVELOPMENT AND VALIDATION OF INTERACTIVE MULTIMEDIA PACKAGE ON DISASTER MANAGEMENT LEARNING ACTIVITIES FOR SCHOOL STUDENTS"

II. OPERATIONAL DEFINITIONS

A. Disaster

In this present study the investigator refers disaster is an unexpected natural flood, cyclone and tsunami, etc which causing significant physical damage or destruction, loss of life or sometimes permanent change to the natural environment.

B. Disaster Management

Disaster management means managing resources and various responsibilities to deal with all humanitarian aspects of emergencies. This may include preparedness, response and recovery. The purpose of disaster management is to lessen the impact of disasters.

C. Web definition (Wiki Pedia)

In this present study the investigator refers Disaster management to how one can manage and implement the action of plan with reference to cyclone, flood and tsunami.

D. Interactive Multimedia

Multimedia is the technology engaging a variety of media, including text, audio, video, graphics and animation, either separately or in combination with computers to communicate ideas or to disseminate information.

In this present study the investigator refers multimedia to teach the electronic module which includes both audio / video.

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III. OBJECTIVES OF THE STUDY

A. Major Objectives

To develop and validate the Interactive Multimedia package on Disaster Management Learning Activities for secondary school students

Development and Validation of Interactive Multimedia Package on Disaster Management Learning Activities

The interactive multimedia package is self-explanatory and conveys all the information regarding safety, preparedness, relief and rescue, and rehabilitation to safeguard the lives and property from all the disasters. This interactive multimedia package also provides information such as how and when disasters occur? What are the reasons for occurrence of disasters? What are the preventive measures and precautions do's and don'ts at the time of disasters are depicted in the interactive multimedia package.

Interactive Multimedia is a combination of audio, video, animation, text etc. The module was prepared with the help of web and interactive multimedia technology.

When the information is provided visually, it will remain in the minds of the school students forever. When the concept is delivered in demonstration form, it provides the first-hand experience and in depth knowledge about disaster management. It teaches the school students about various disasters.

The interactive multimedia package is effectively delivered.

This interactive multimedia package is such an edutainment that serves the purpose of teaching learning in the present scenario. This is an educational module on disaster management which has been prepared by using the HTML CSS, JAVASCRIPT .

The Researcher used following steps for developing product as above mentioned

1) Predevelopment Steps

a) Content Analysis And Content Selection For The Interactive Multimedia Package: The content for the package has been taken from the 6th, 7th, 8th, 9th and 10th standard Social Science book of the Tamilnadu state board. The prepared content has been given to the subject experts to check the validity and reliability. The same has been given to the number of 10 students from different standards for the pilot study based on their suggestions changes have been carried out. Finally, the following disasters content were selected for the interactive multimedia package preparation

- Disaster and types
- Natural disasters and Manmade Disaster
- Earthquake
- Volcanoes
- Tsunami
- Cyclones
- Flood
- Landslide
- Avalanche
- Thunder and Lightening
- Hurricane
- Blizzards/Winter Storm &
- Pandemic Diseases

b) Story Board Writing: After finalizing the content the story board was prepared by the researcher with the help of the technical experts

c) Collection Of Necessary Materials: Researcher collected necessary material related to the selected content of disasters from the 6th, 7th, 8th, 9th and 10th standard Social Science book of the Tamilnadu state board and the internet. Researcher also collected pictures, videos, text, animated videos, and sound for the development of the Interactive multimedia package

2) Development Stage

Researcher use the script and organize the videos picture, animations, texture material, sound as per script. The Package was prepared with the help of web and interactive multimedia technology.-HTML CSS, JAVASCRIPT and Adobe Flash

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3) Post Development Stage

After the development of the package, pilot study was conducted among the small group of tenth standard students and it has been given to the technical reviewers and content reviewers to check the accessibility and validity of the content. Based on their views and suggestions the package was finalized.

Features of the Interactive Multimedia Package

The interactive package has text, images, video, animation, and activity. The entire package has the 'Speak Now' option which is disable friendly; it will enable the entire content to be read. Each page has the option to go for the previous page and the next page. The package starts with the registration page, followed by each disaster and activity page. It is designed in such a way that the learner can go step by step. There is a provision to visit the previous page but the next page will appear only if they finish the particular activity. Each activity contains the try again and checks answer option. After each activity, the score screen will appear along with the feedback.

IV. REGISTRATION LINK

The module registration page consists of the following personal details of those who are using the Interactive multimedia package.

Name

Standard - 6^{th}, 7^{th}, 8^{th}, 9^{th}, 10^{th}

Medium- Tamil, English

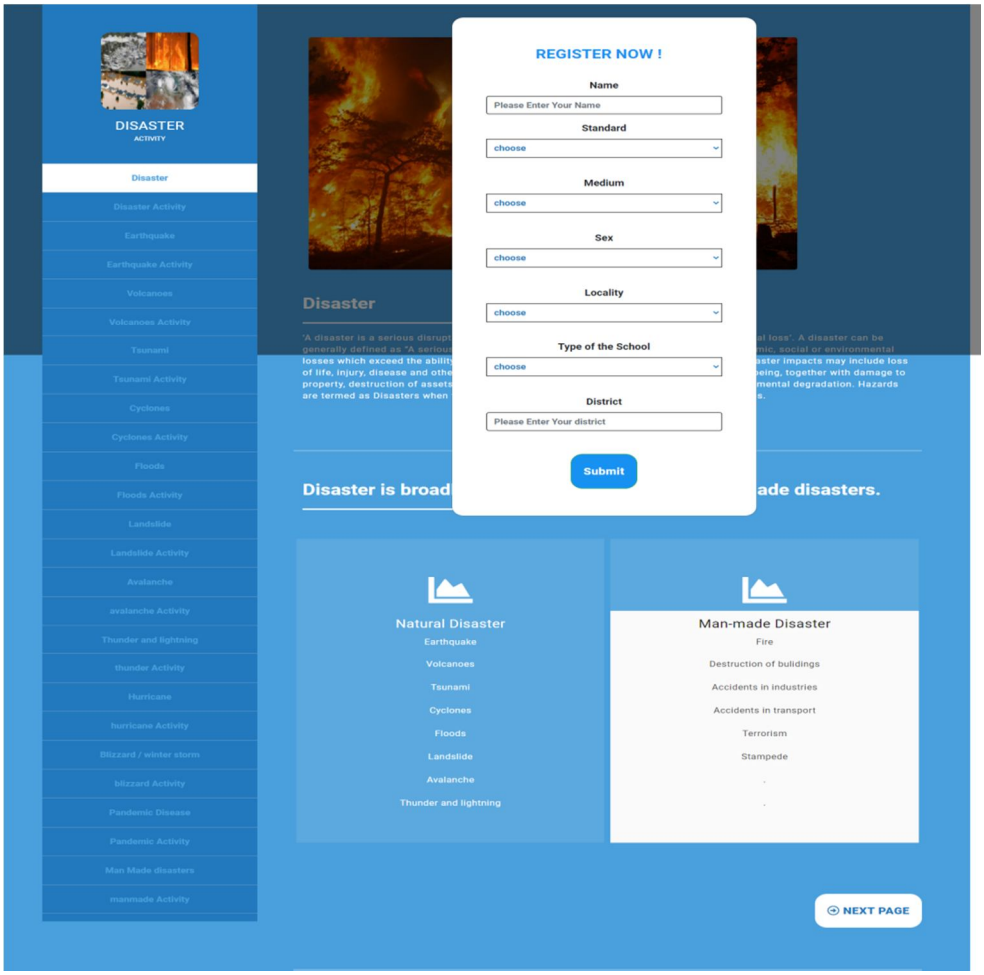
Sex - Male, Female

Locality- Rural, Semi-Urban, Urban

Type of School- Matric, Government Aided, Government

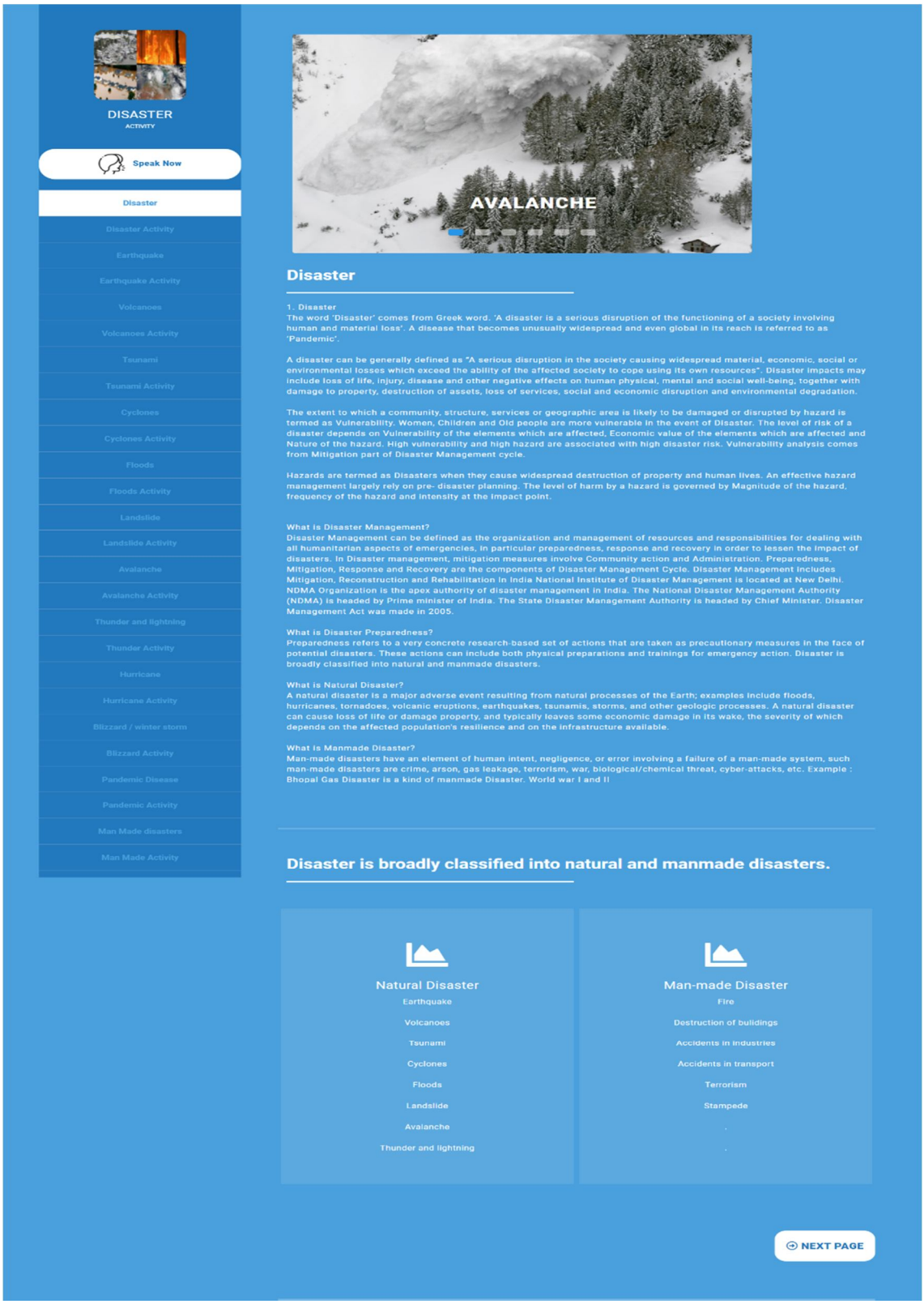
District

Registration Link



1) Page One: Disaster

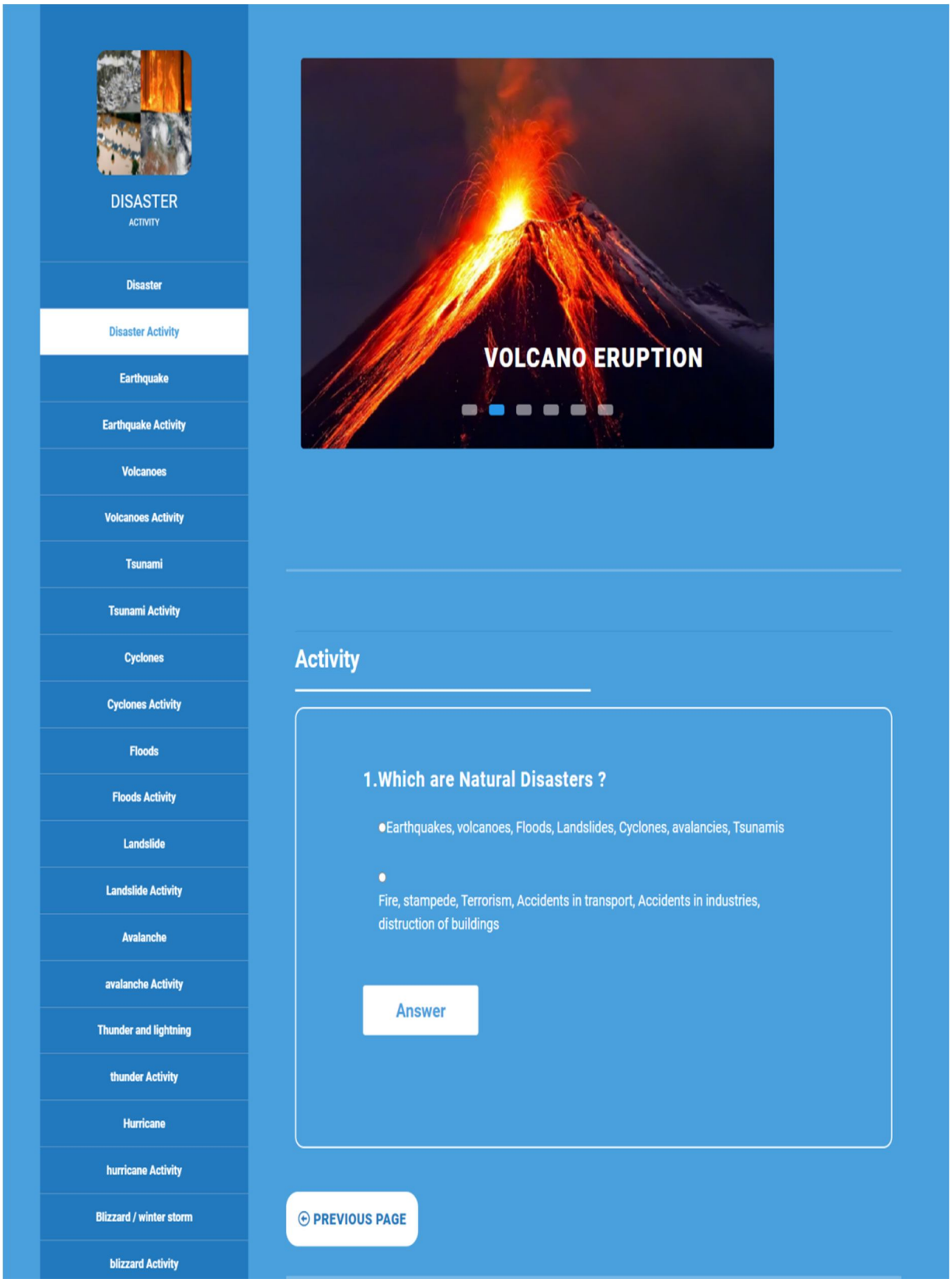
The first page consists of the definition of disaster and a classification chart of natural disasters and manmade disasters; it has a flash image of all the disasters.



Page 1: Disaster

2) Page two: Disaster Activity

This page contains a total of 7 activities in the form of choose the best option and choose multiple option questions for natural disasters and man-made disasters.



Page 2: Disaster Activity

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
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3) *Page Three:* Earthquake

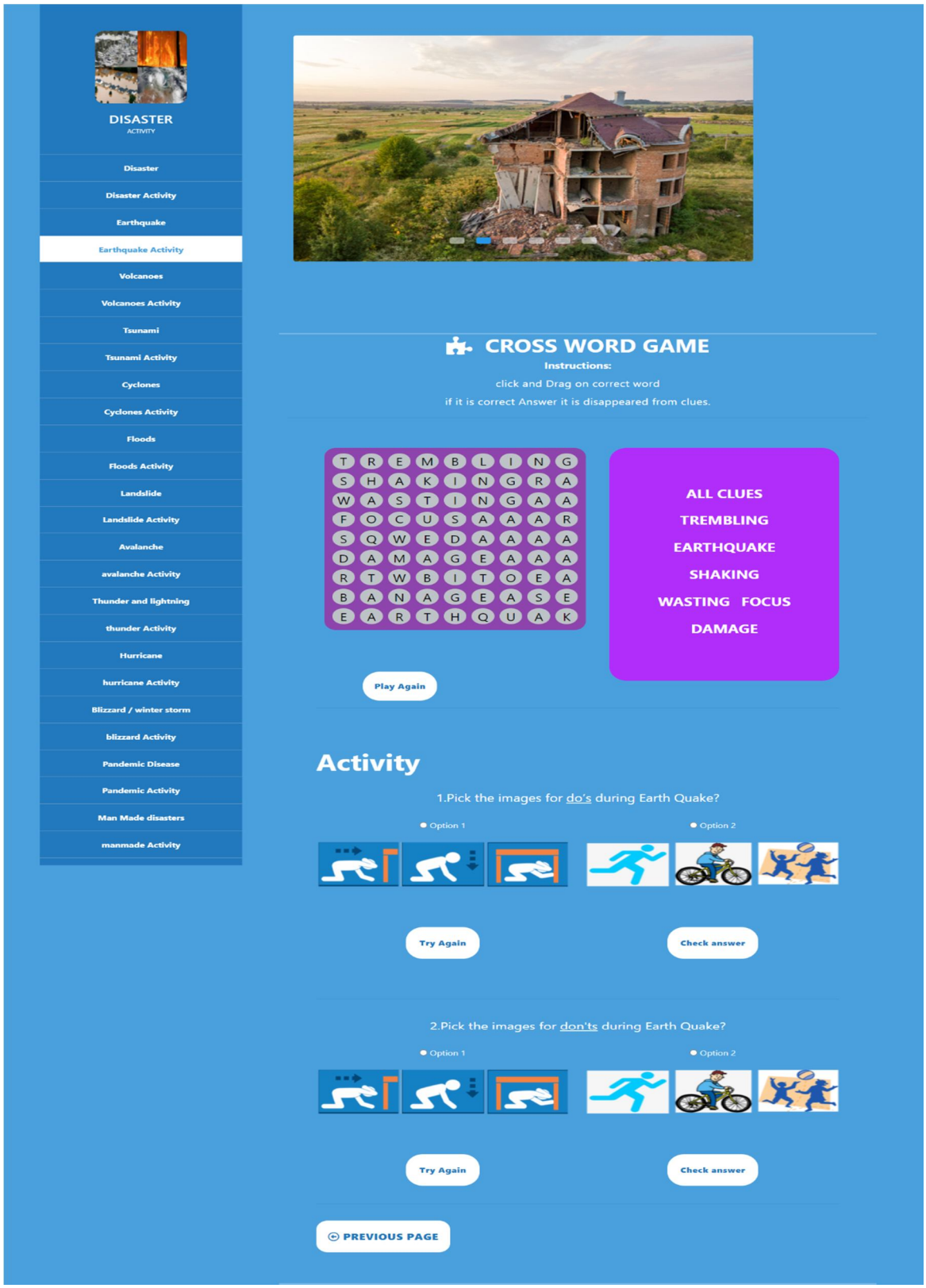
This page contains the definition, effects, do's, before, during, after the earthquake, pictures of a protection chart during the earthquake, and a video about the earthquake for 2.06 minutes.



Page 3: Earthquake

4) Page Four: Earthquake Activity

This page consists of the instruction for the activities followed by 3 activities namely, crossword puzzle game, pick the image for Do's and Don'ts.

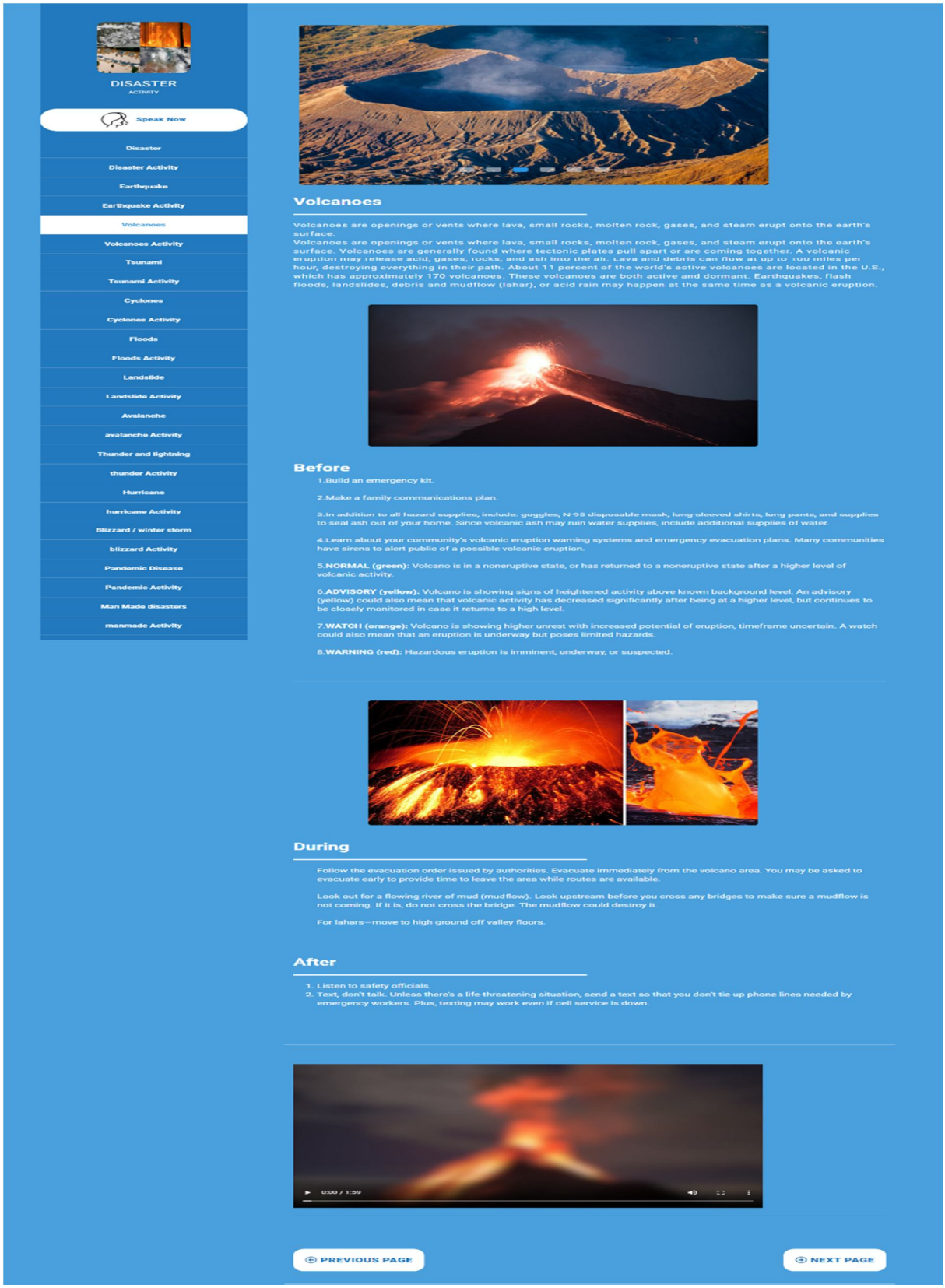


Page 4: Earthquake Activity

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5) Page Five: Volcanoes

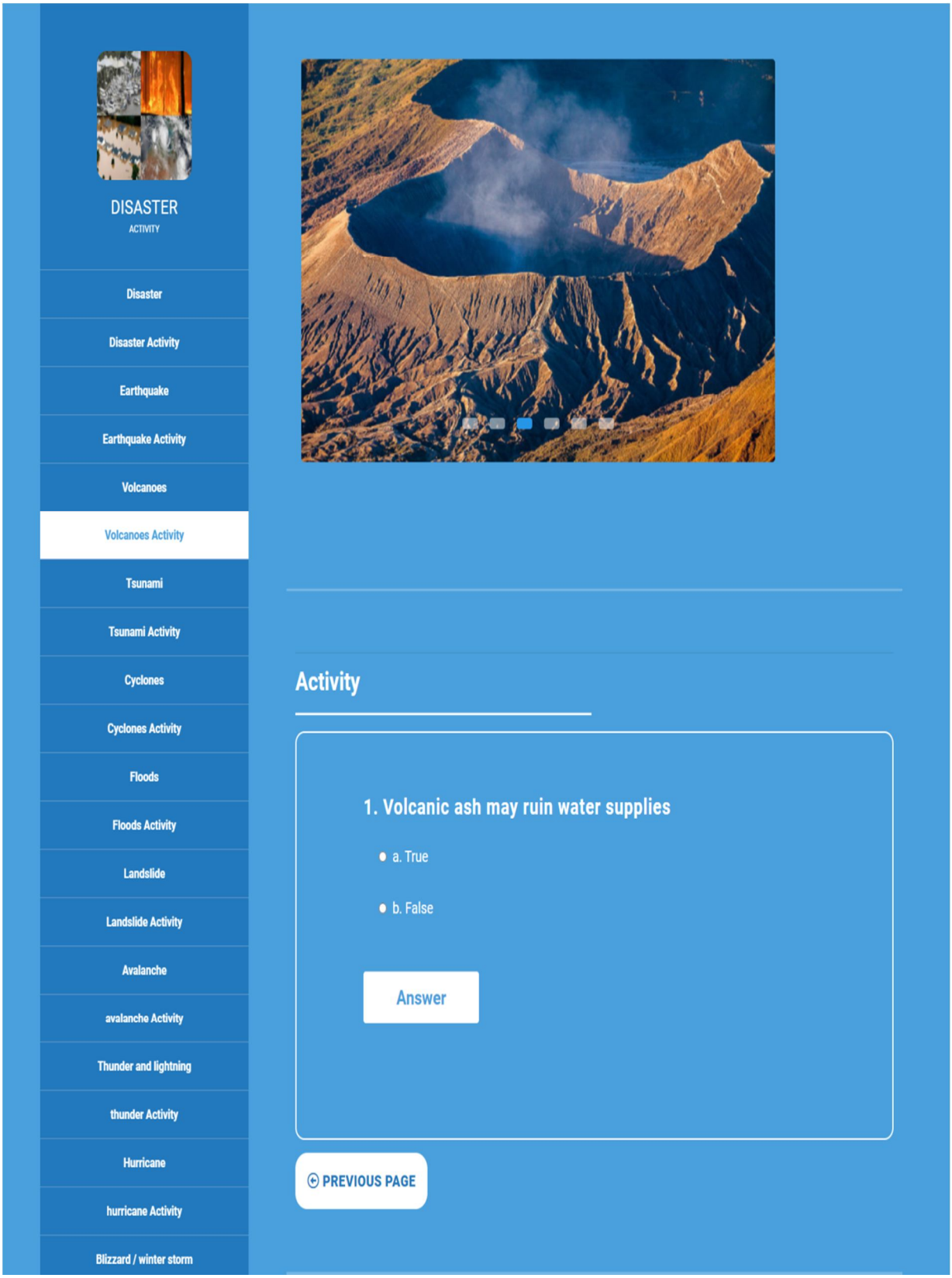
This page contains the definition, before, during, and after volcano along with images and a video of 1.59 minutes.



Page 5: Volcanoes

6) Page Six: Volcanoes Activity

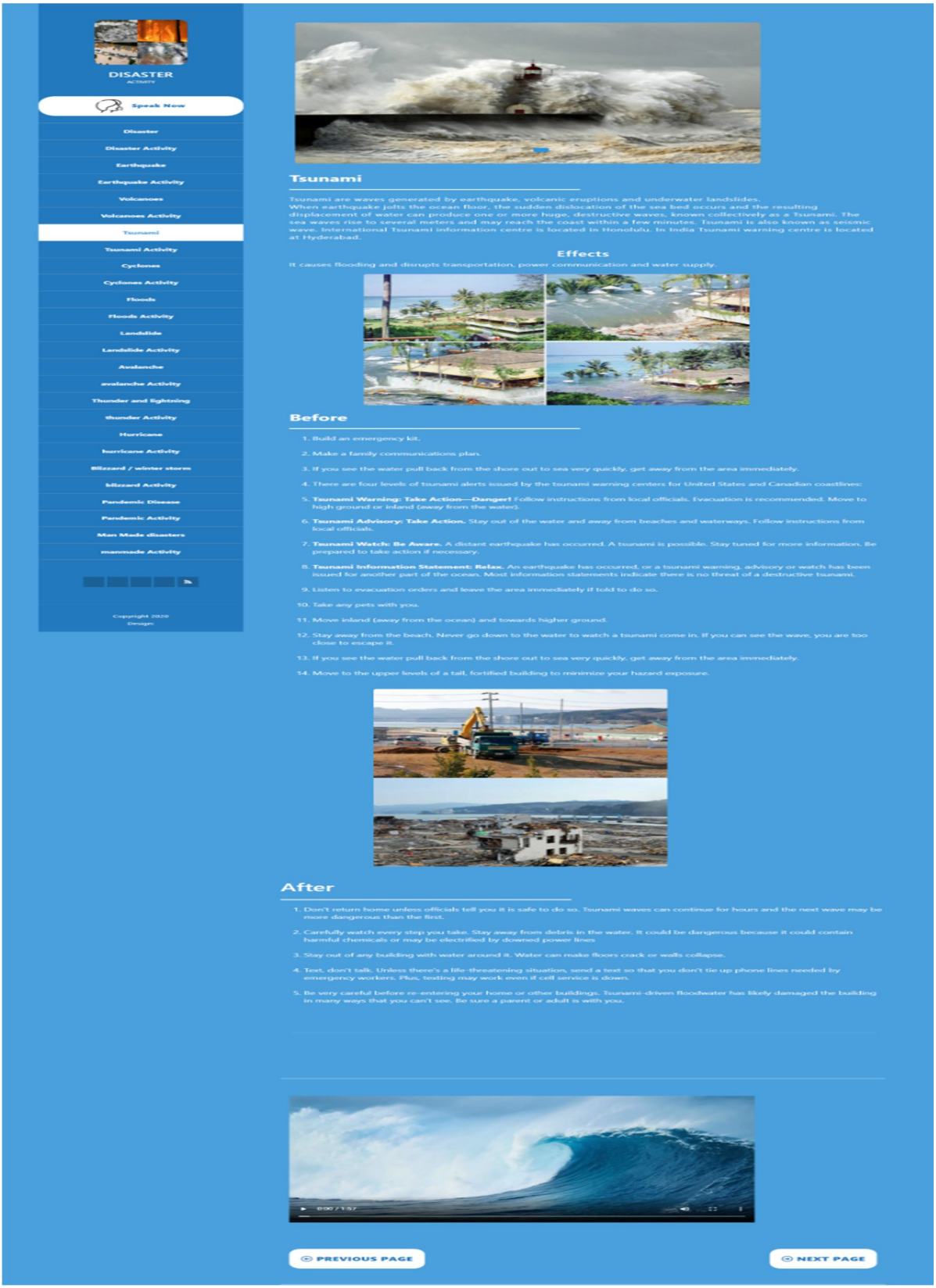
This page consists of 3 activities namely true or false and chooses the best option followed one by one.



Page 6: Volcanoes Activity

7) *Page Seven:* Tsunami

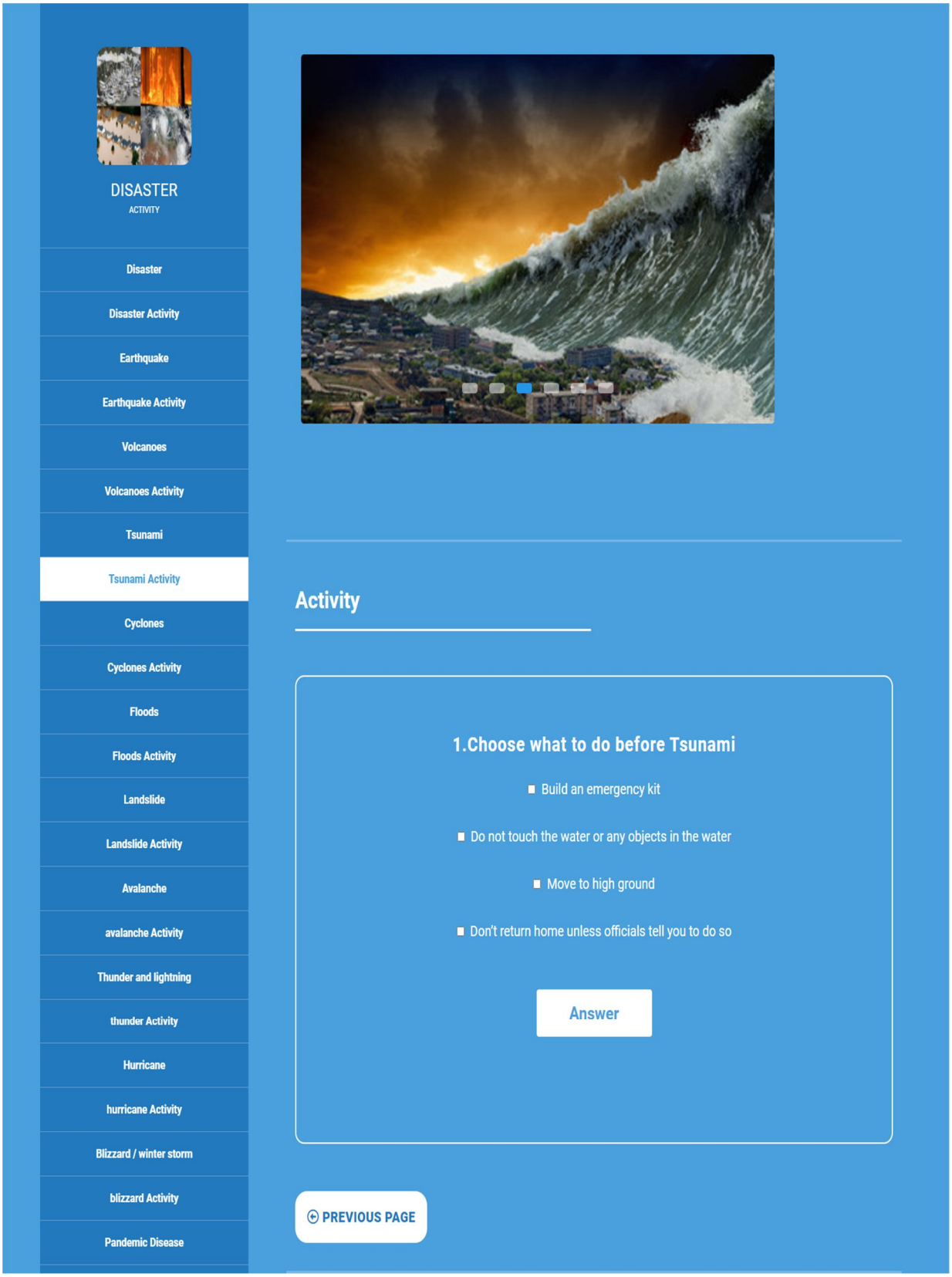
This page contains the definition, effects, before, after tsunami along with images and a video of 1.57 minutes.



Page 7: Tsunami

8) Page Eight: Tsunami Activity

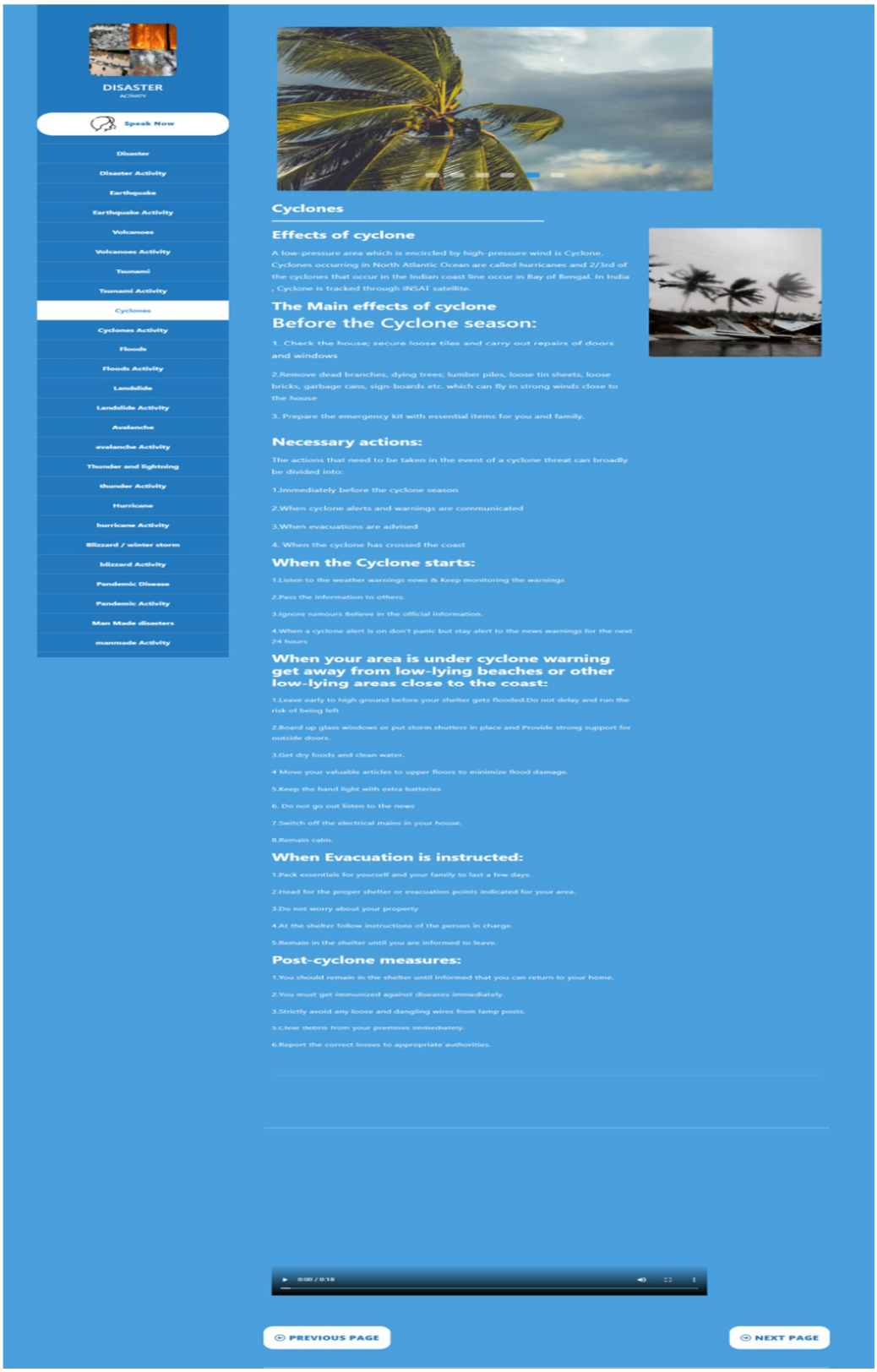
This page consists of 3 activities namely chooses the best option and choose the multiple options followed one by one.



Page 8: Tsunami Activity

9) Page Nine: Cyclones

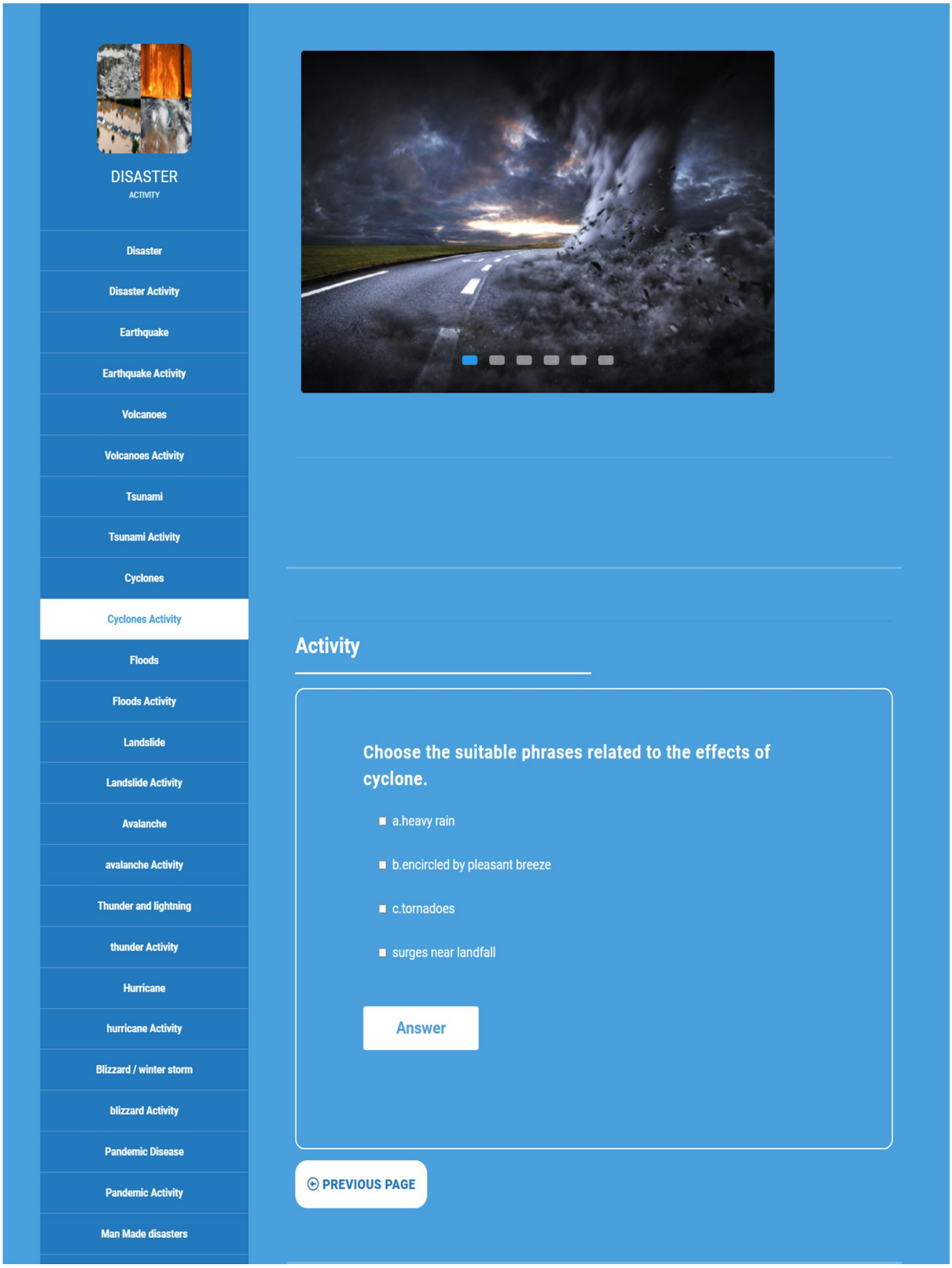
This page contains the definition, effects of cyclone, Pre and post-cyclone effects, Evacuation instruction along with images and a video for 18 seconds.



Page 9: Cyclones

10) Page Ten: Cyclones Activity

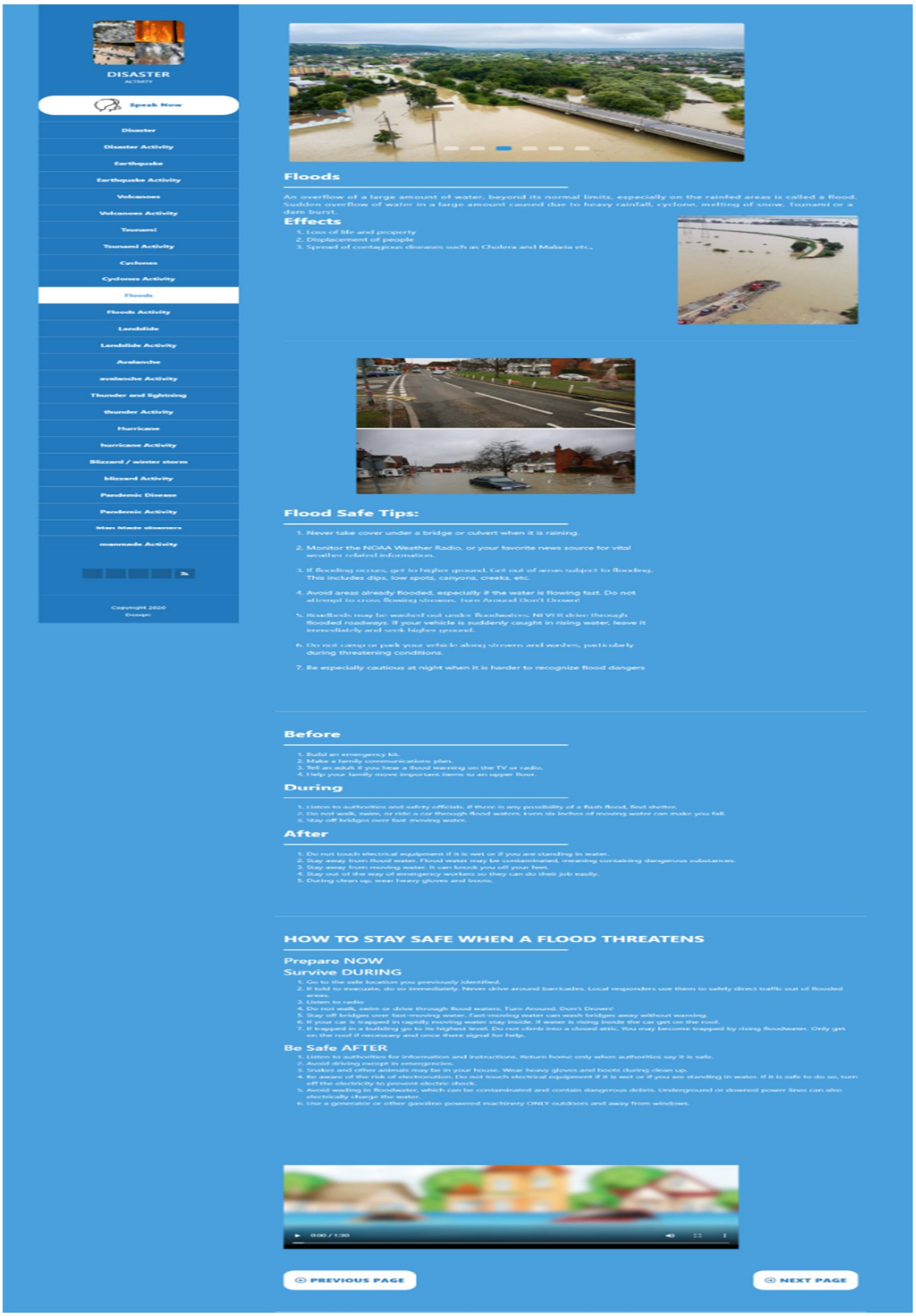
This page consists of choosing the multiple options activity.



Page 10: Cyclones Activity

11) Page Eleven: Flood

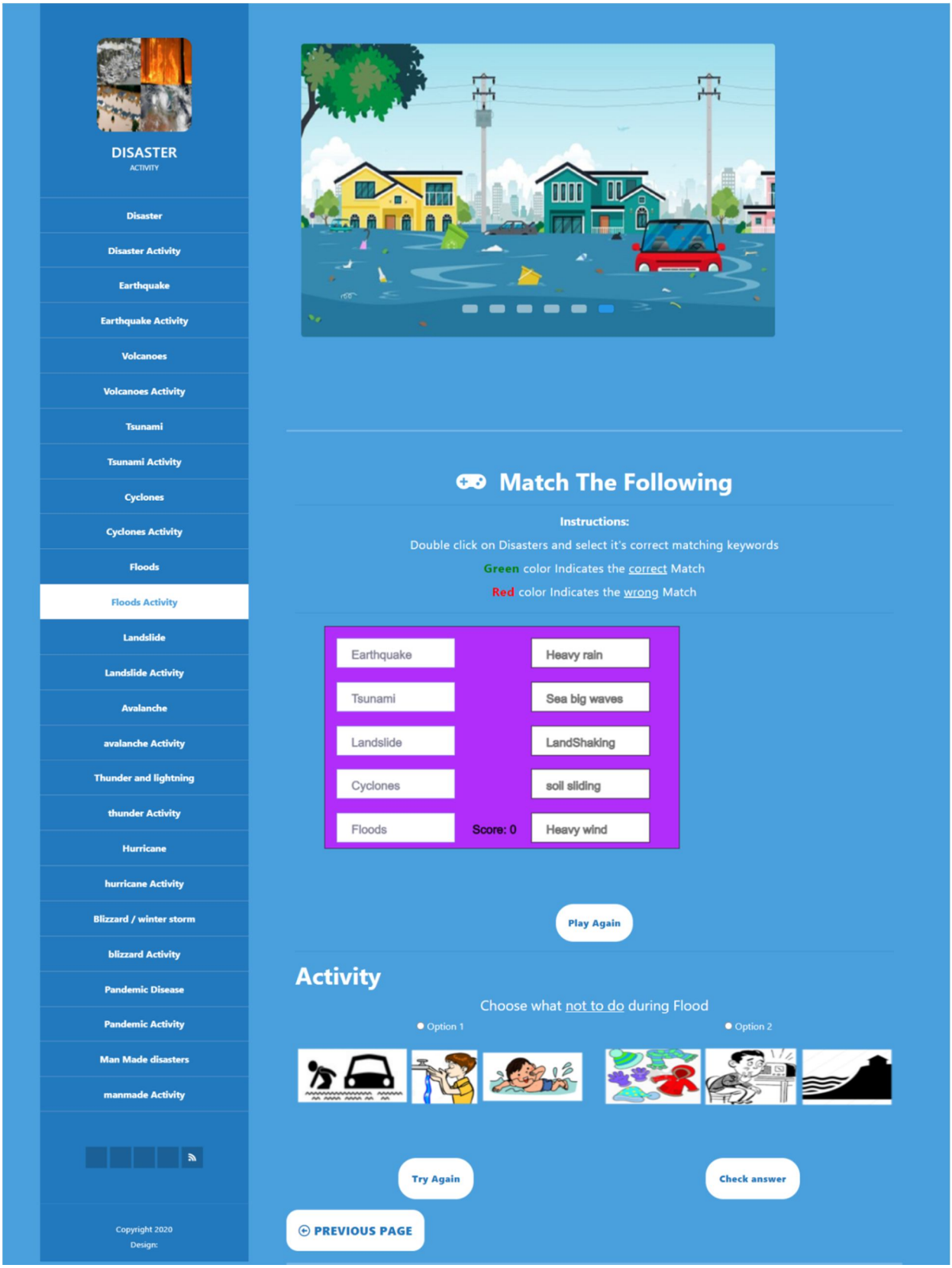
This page contains the definition, effects of flood, flood safe tip, before-during-after flood, how to stay safe when the flood threatens along with images and a video for 1:30 minutes.



Page 11: Floods

12) Page Twelve: Flood Activity

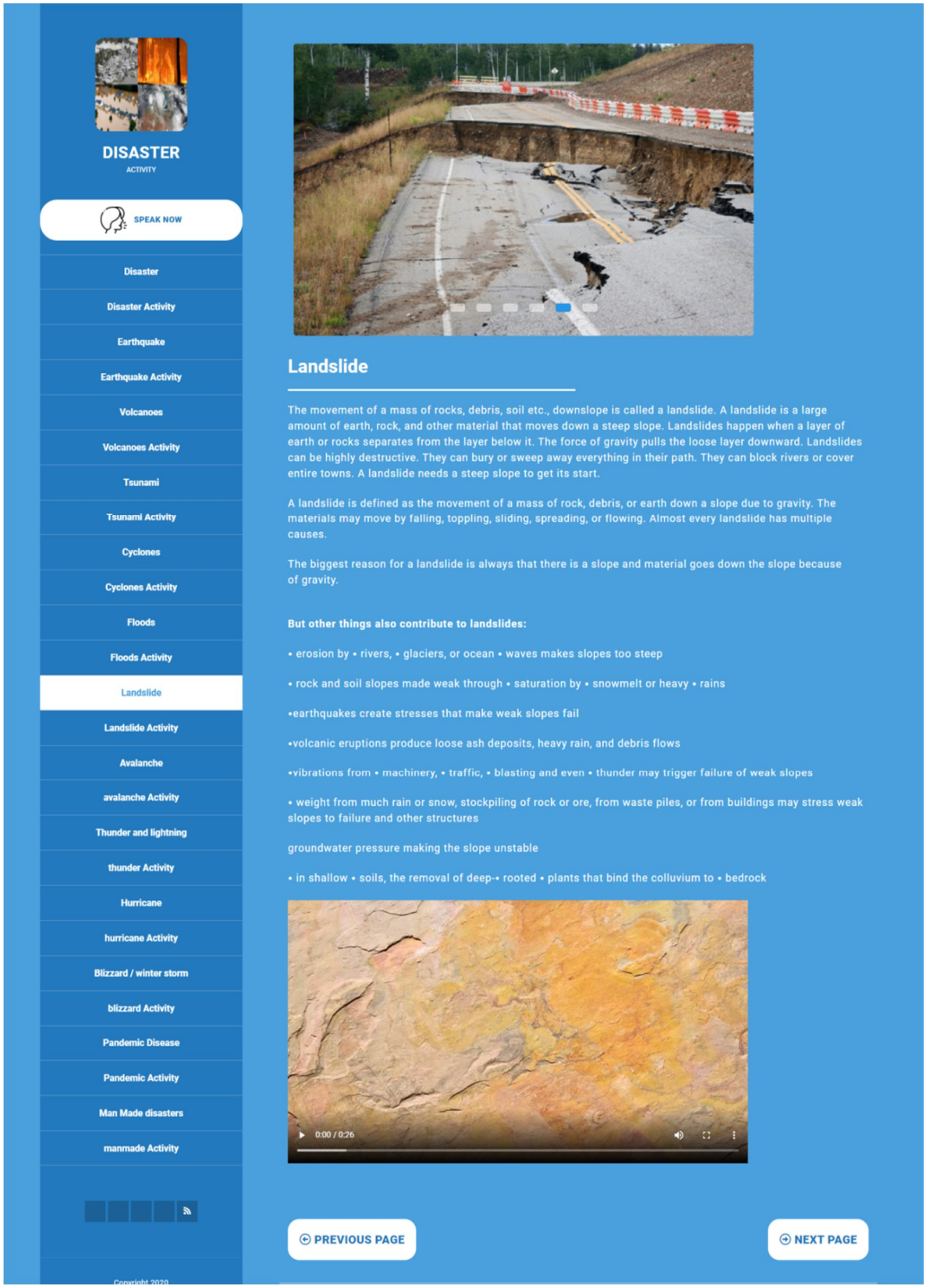
This page consists of activities namely Match the following, and picture selection.



Page 12: Floods Activity

13) Page Thirteen: Landslide

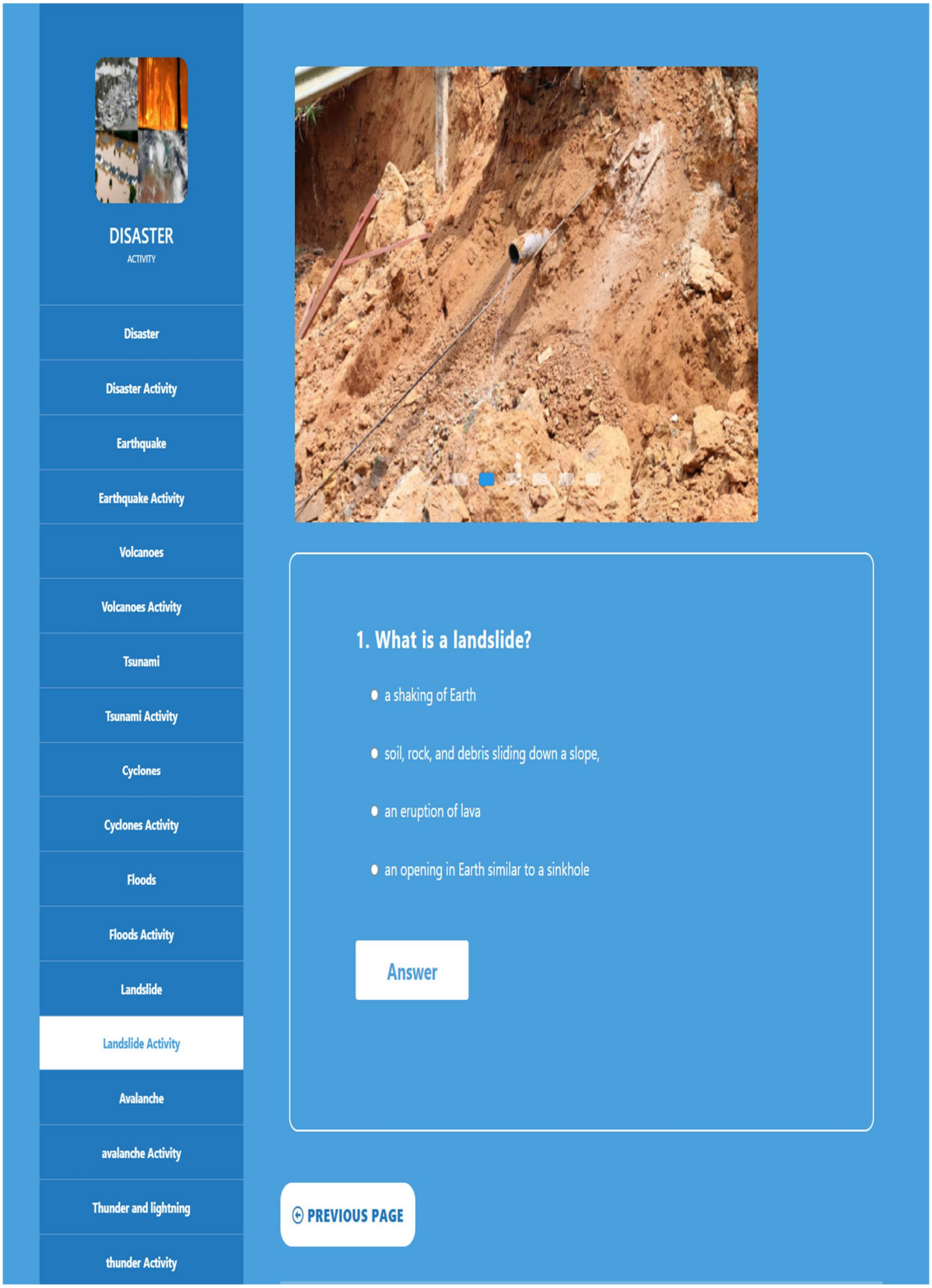
This page contains detailed notes of Landslide along with a 26 seconds video.



Page 13: Landslides

14) Page Fourteen: Landslide Activity

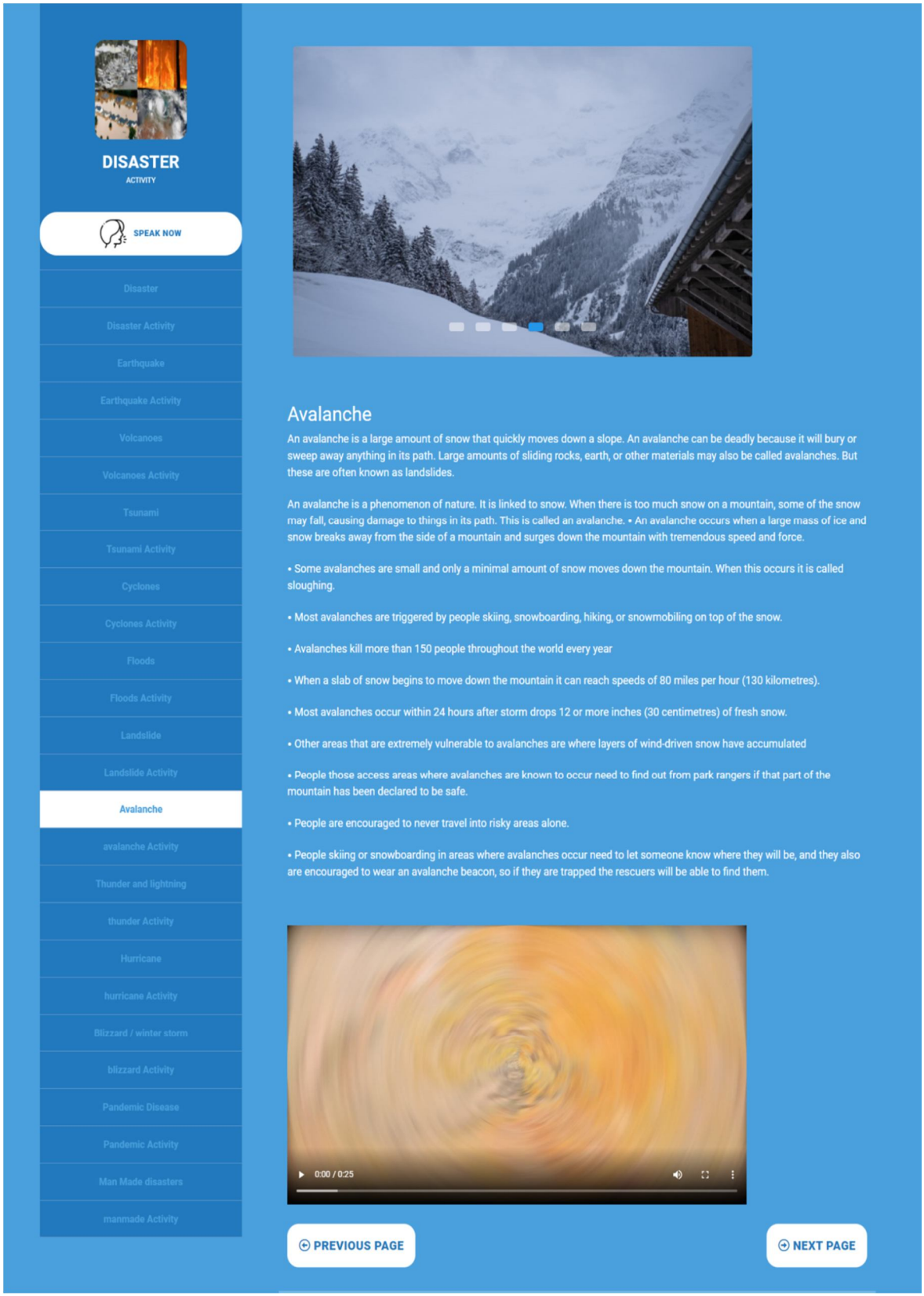
This page consists of 3 different activities related to landslides



Page 14: Landslides Activity

15) Page Fifteen: Avalanche

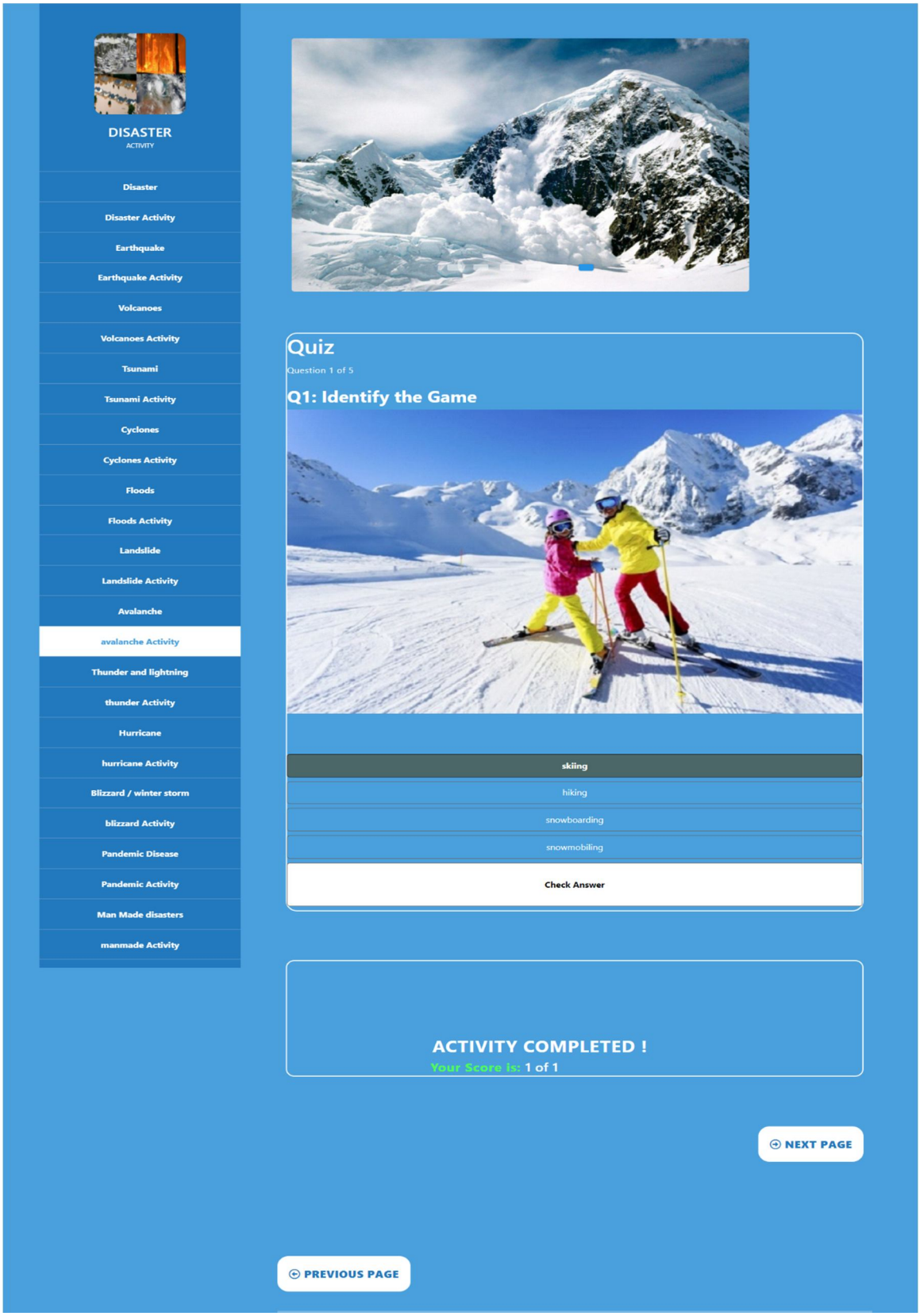
This page contains detailed notes of Avalanche along with a 25 seconds video.



Page 15: Avalanche

16) *Page Sixteen:* Avalanche Activity

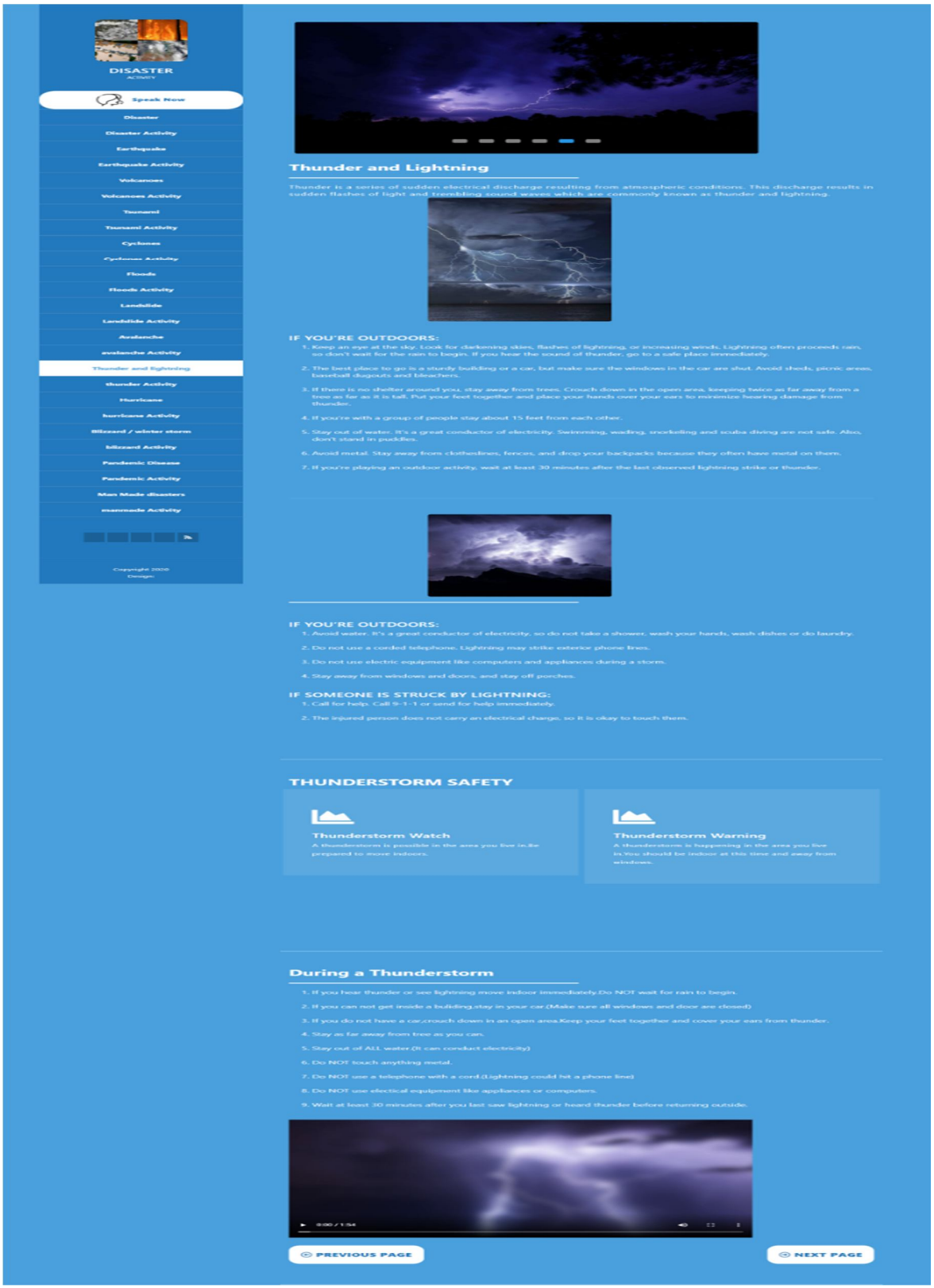
This page consists of 2 different activities related to landslides such as identification of images and Quiz.



Page 16: Avalanche Activity

17) Page Seventeen: Thunder and Lightning

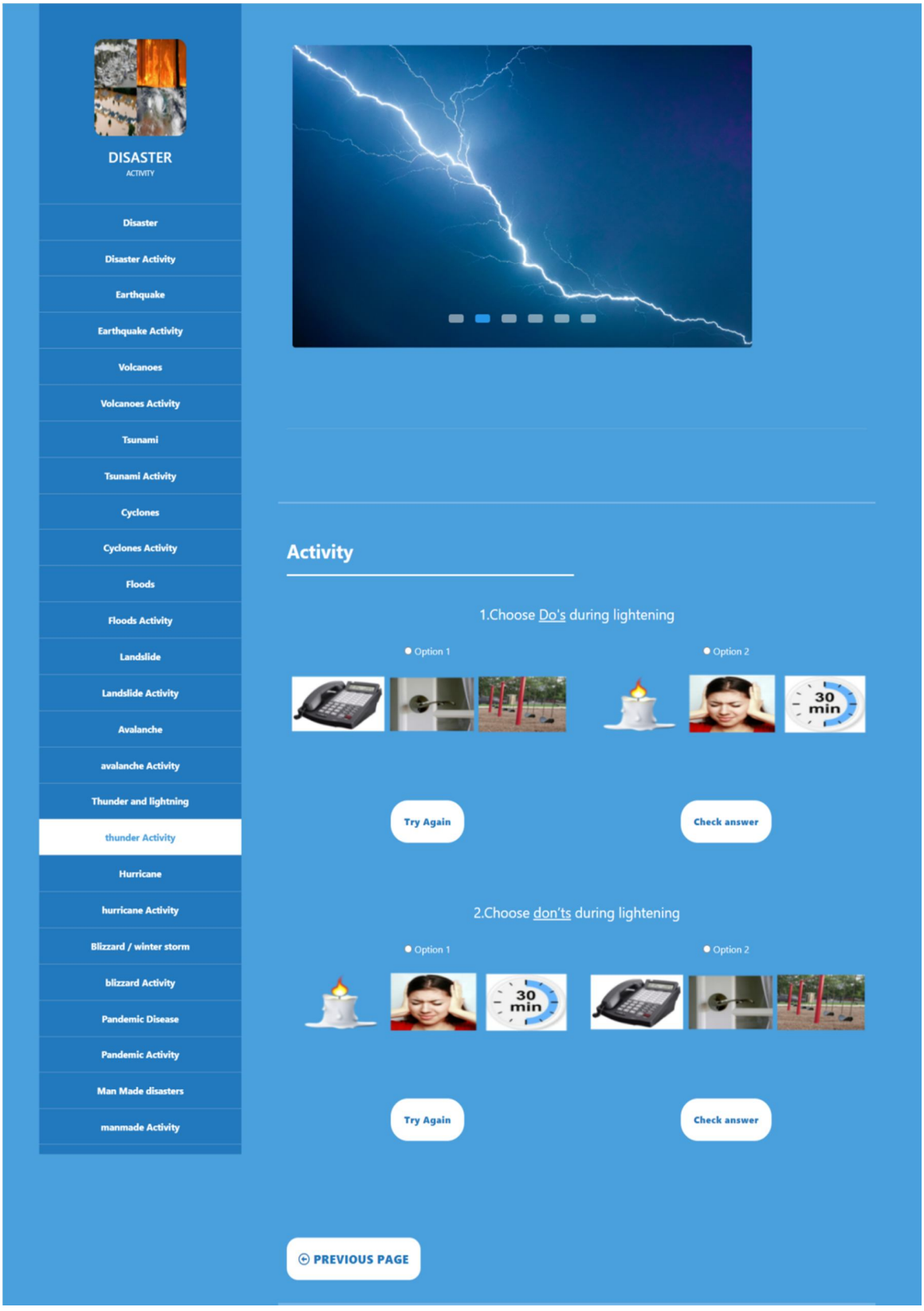
This page contains detailed notes of thunder and lightning, instruction for if you are outdoors, if someone is stuck in lightning, thunderstorm safety, during a thunderstorm along with a 1:54 minutes video.



Page 17: Thunder and Lightning

18) Page Eighteen: Thunder and Lightning Activity

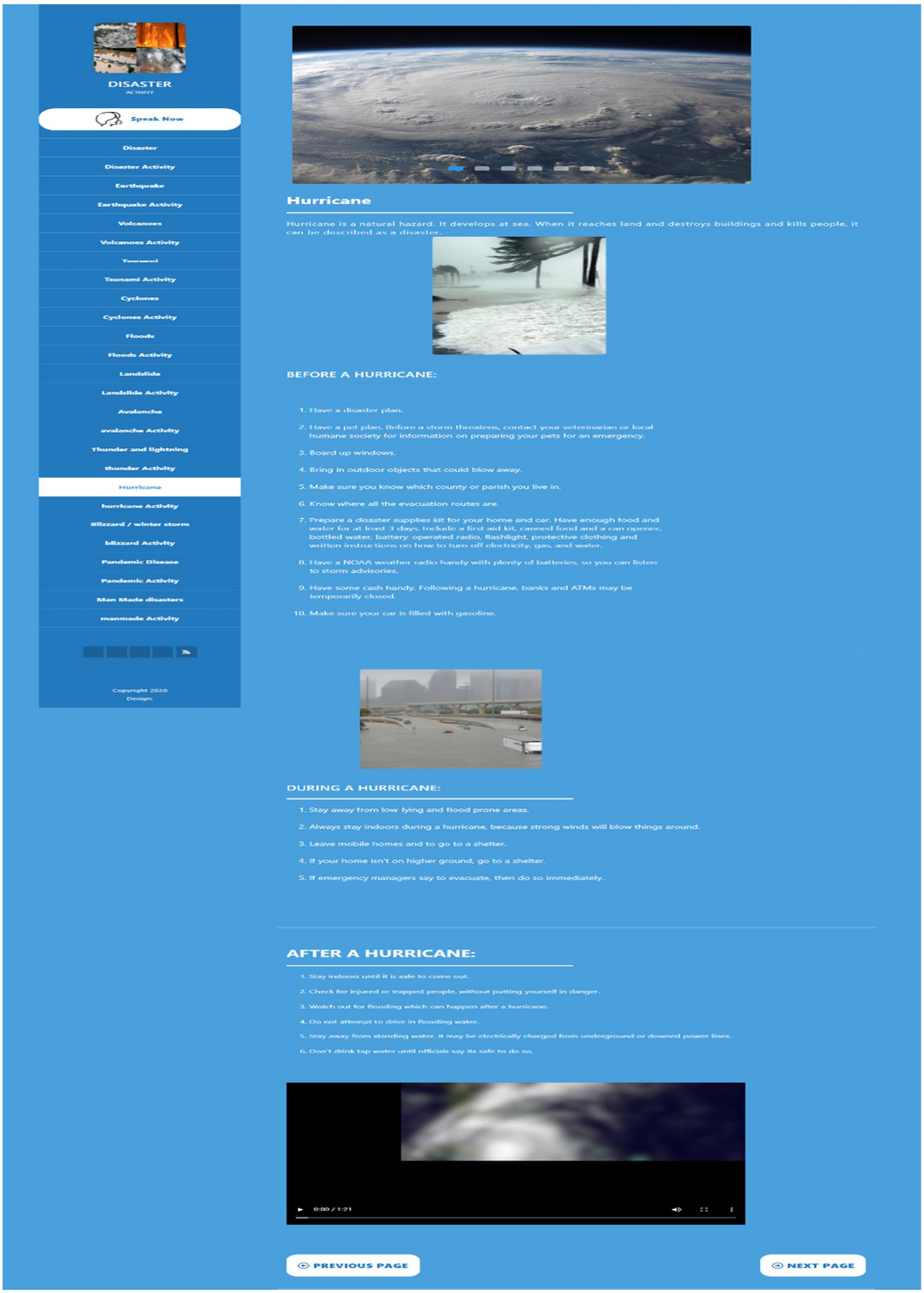
This page consists of 2 different activities related to thunder and lightning namely the identification of images.



Page 18: Thunder and Lightning Activity

19) Page Nineteen: Hurricane

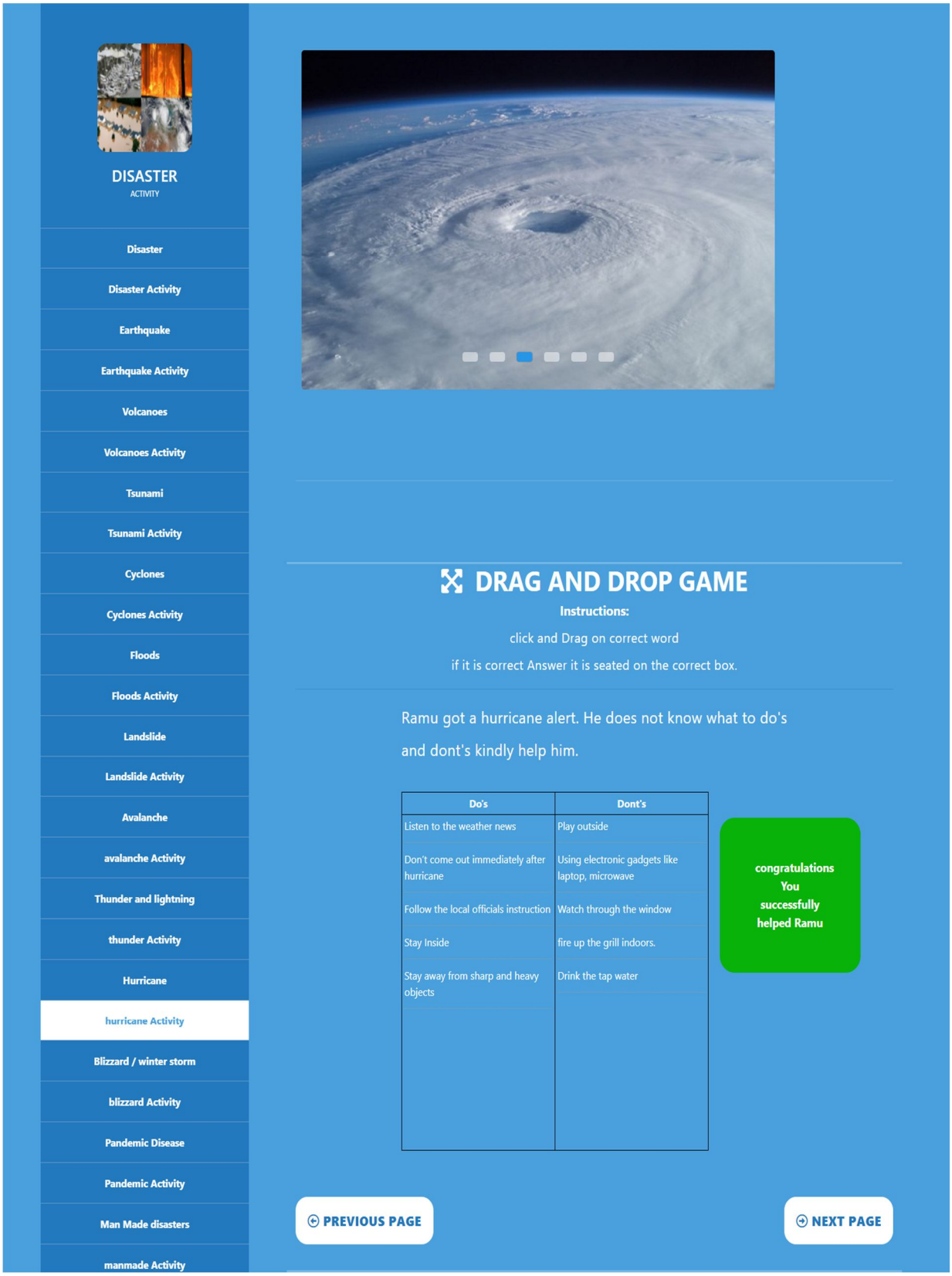
Definition of the hurricane, before, during, and after hurricane along with images the video for 1:21 minutes are the contents present on this page.



Page 19: Hurricane

20) Page Twenty: Hurricane Activity

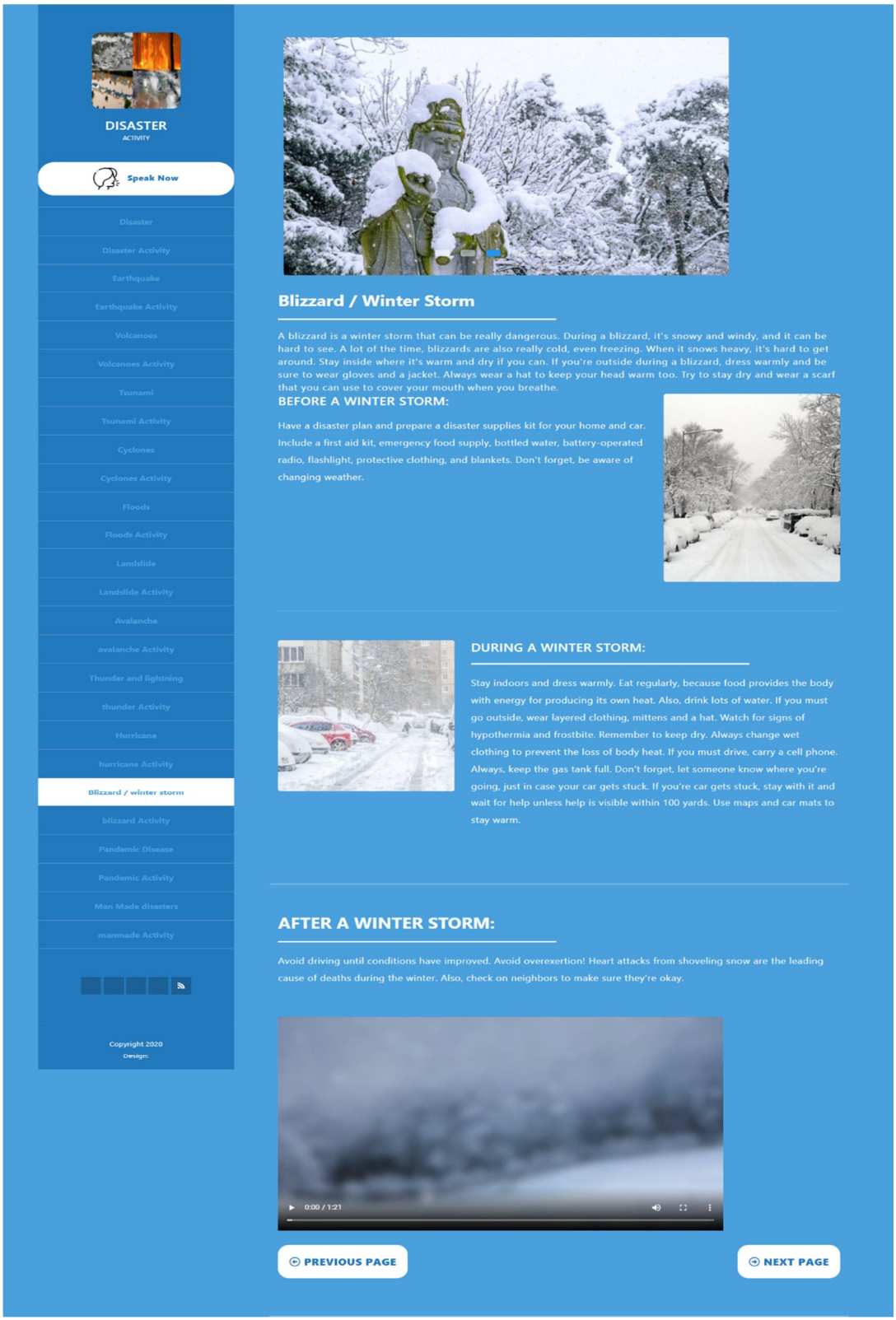
Drag and drop puzzle game is given as an activity for a hurricane on this page.



Page 20: Hurricane Activity

21) Page Twenty-One: Blizzards/Winter Storm

This page contains detailed notes of blizzards/winter storms, before, during, and after blizzard along with images and 1:21 minutes video.



Page 21: Blizzard/ Winter Storm

22) Page Twenty-Two: Blizzards/Winter Storm Activity

This page consists of 2 different activities related to blizzard as identification of images.



Page 22: Blizzard/ Winter Storm Activity

23) Page Twenty-Three: Pandemic Disease

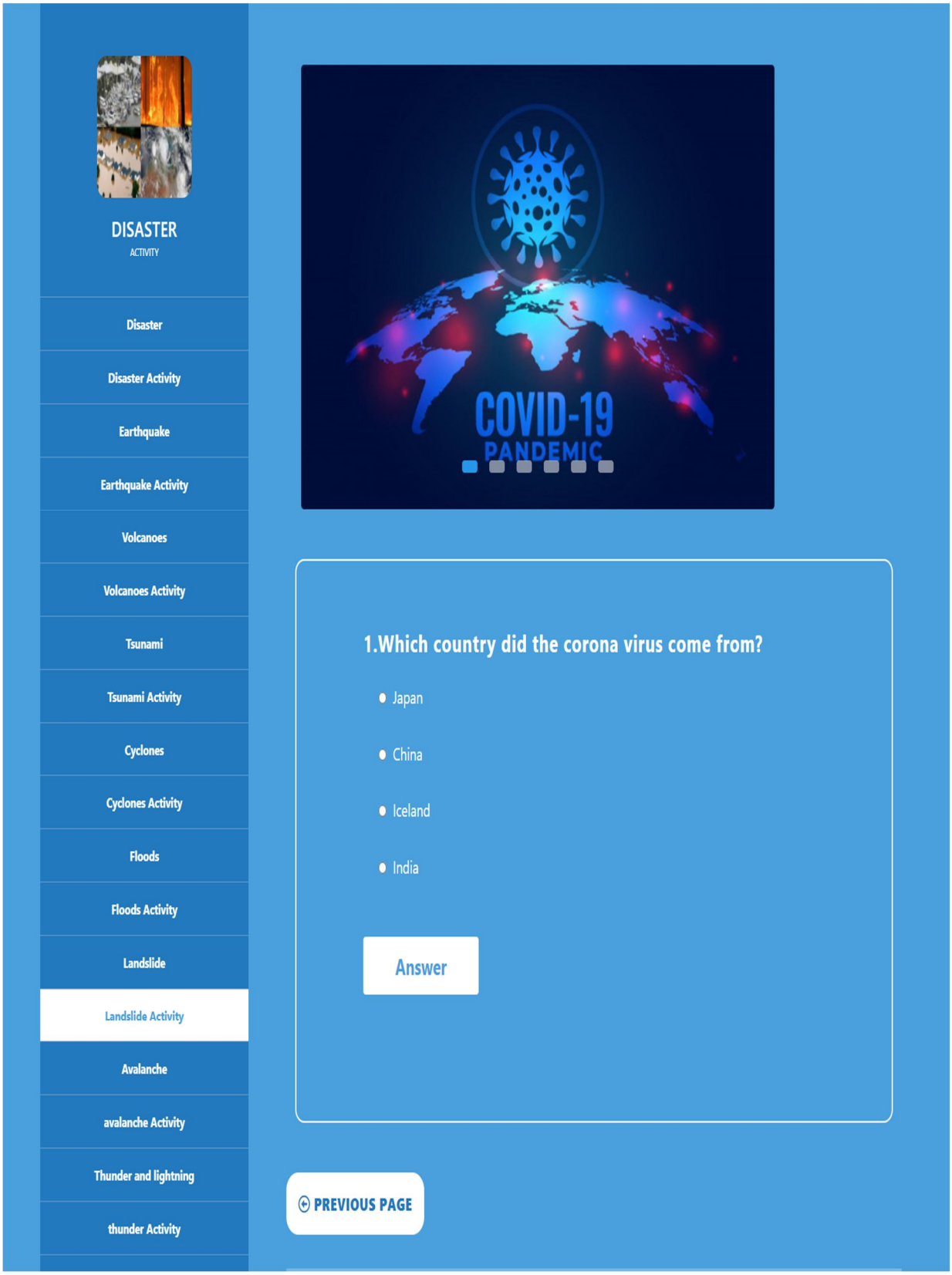
A detailed note of pandemic outbreak, Covid-19, epidemic & pandemic, and prevention details are given on this page along with relevant images and a video of 3:01 minutes.



Page 23: Pandemic

24) Page Twenty-Four: Pandemic Disease Activity

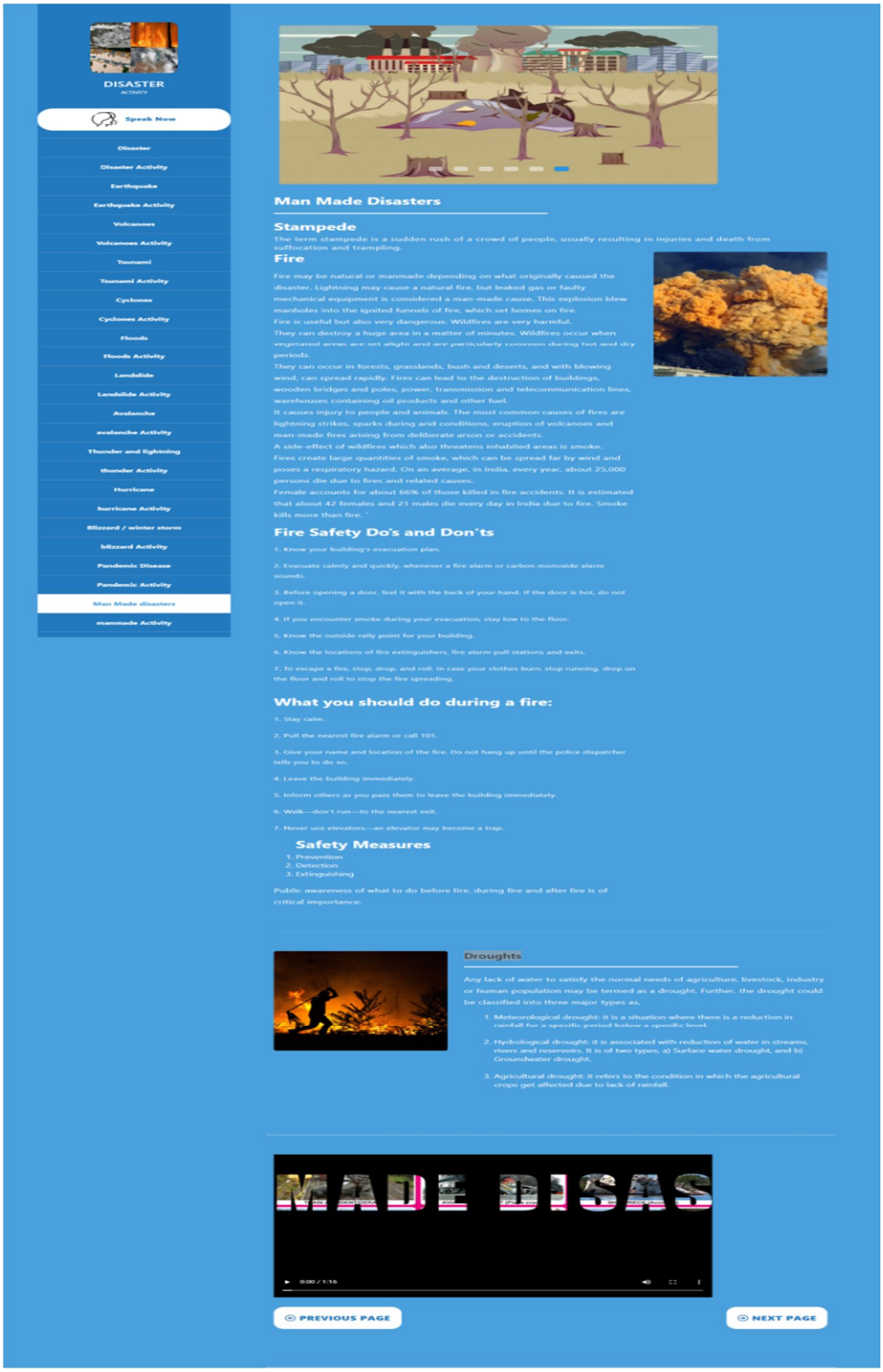
This page consists of 5 different activities related to pandemic diseases followed one by one.



Page 24: Pandemic Activity

25) Page Twenty-Five: Man-made Disaster

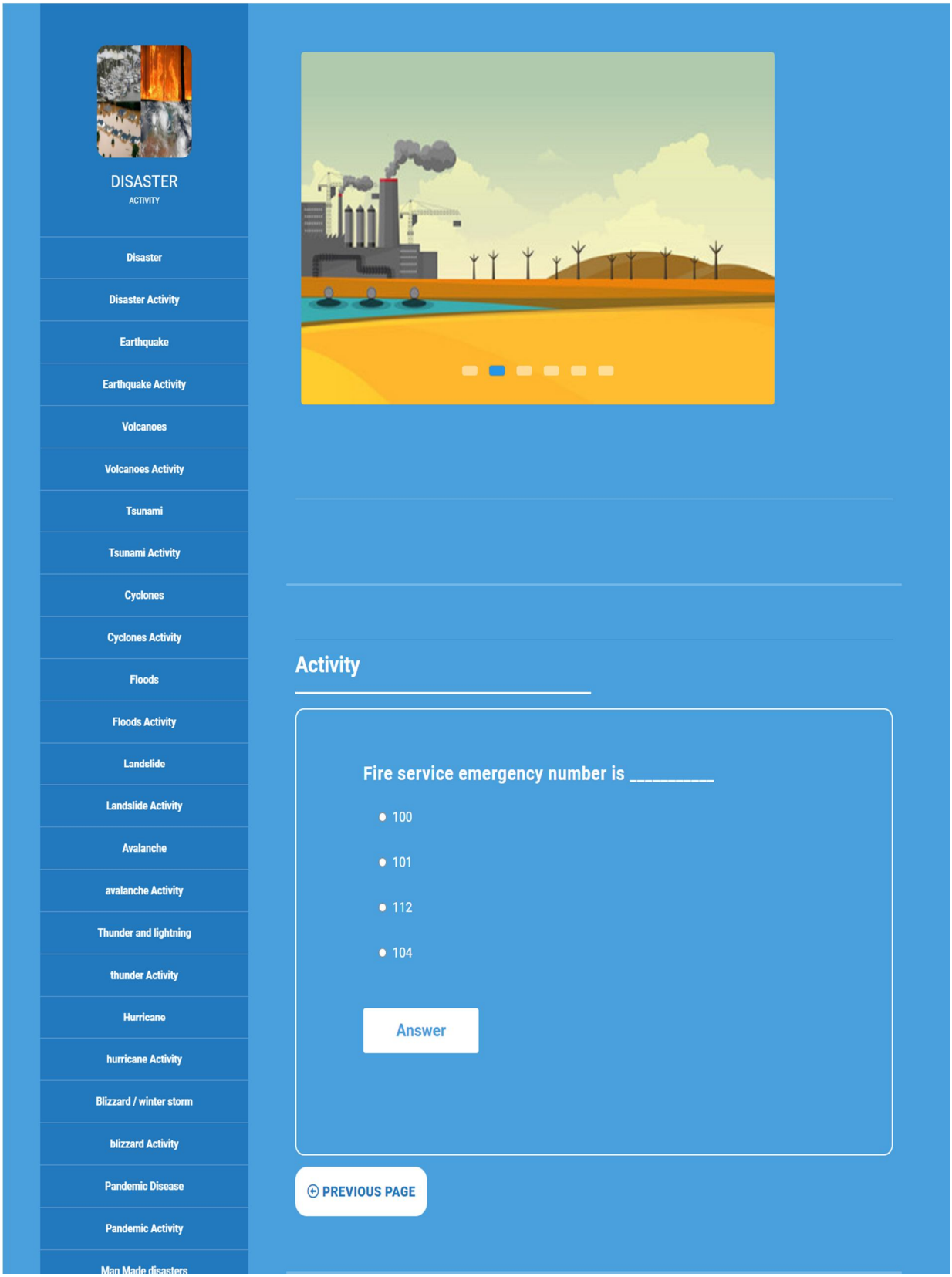
This page contains detailed notes of man-made disasters via, stampede, fire: fire safety do's and don'ts before, What one should do during a fire, safety measures, and short notes on droughts along with images and 1:61 minutes video on the man-made disasters.



Page 25: Man-made Disasters

26) Page Twenty-Six: Man-made Disaster Activity

This page consists of 2 different activities followed one by one related to man-made disasters.



Page 26: Man-made Disaster Activity

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue IX Sep 2022- Available at www.ijraset.com

V. VALIDATION OF INTERACTIVE MULTIMEDIA PACKAGE

The Interactive Multimedia package was taken to the following personnel and its validation was checked by using the questionnaire constructed by the investigator.

1) Secondary School Teachers
2) Technical Experts(Educational Technologists, Software Specialists, Technicians and Computer programmer)

The content, the clarity of video and audio, the usage of the interactive multimedia package were discussed with the above personnel and the validity and reliability of the Interactive Multimedia Package was checked and confirmed. The Interactive Multimedia Package on Disaster Management Learning activities is attached with this report in CD form.

a) *Construction Of Disaster Management Awareness And Preparedness Test:* The Disaster Management Awareness and Preparedness test was designed to measure the knowledge and awareness on Disaster management among secondary school students.

b) *Development of Item Pool:*To construct the initial test items, the investigator collected the literature and collected the material from the Tamilnadu state board secondary school science text books. After that the investigator has tried to write as many questions as possible. The investigator has written totally 80 questions.

c) *Pre-Pilot Study:* After writing the statements, the investigator placed the tool before the experts in order to examine the suitability. Based on the comments and suggestions from them, the statements were reconstructed and eliminated after which 72 statements were retained and a pilot study was done

d) *Pilot Study:* Before the questionnaire is finalized, the pre pilot version of the test items was administered for 30 students. On collecting the returned pilot data, the tool was subjected to item analysis.

Procedure of item Analysis of the Tool

The investigator has done the Item analysis.30 sample scores were arranged in descending order i.e highest score at the top and the lowest at the bottom. After that, the topmost 27 % of the samples and bottommost 27% of the sample were taken into consideration for item analysis out of 30, 8 samples were taken in the upper group and 8 samples were taken in the lower group and the chart was prepared for the same and the scores for each sample were noted down in the chart for each item and scored for the upper and lower group separately. The formula Di=(U=L)2N and Dp=(U-L)/N were used to find out the difficulty index and Discrimination power. 'U' is the total score for the upper group and 'l' is the total score for the lower group and N' is the number of subjects. Di measure content validity and Dp measure Construct Validity of the test.

After item analysis Di values ranging from 0.625 -0.875 and the Dp value 0.3 -0.75 were taken into consideration. 57 items were retained in the test and 15 items were eliminated. Higher values of Di indicate that items were easy.

e) *Standardization of the Disaster management and awareness Test:* Standardization of a test or tool involves finding out its reliability and validity.

- Validity
- Face Validity

Face validity refers how good a measurement instrument appears to measure what it was designed to measure. The Disaster Management and Awareness Test have items to test the subject's awareness and knowledge on Disaster management. So it has face validity.

- Content Validity

To establish the content validity the Disaster Management and Awareness Test was given for expert's opinion. Based on their feedback and suggestions modifications were made in the tool.

- Discriminant Validity

The items in Disaster Management and Awareness Test discriminate between the low, medium and high achievers. So it has discriminant validity.

- Reliability

The reliability of the tool was calculated to be 0.72 by using split-half reliability test method, which showed that the items are substantial and relevant to the test.

- Scoring procedure

Each correct answer is to given a score of '1'and '0' is to be given for incorrect answer.

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VI. CONCLUSION

Disaster can strike at any time, at any place. Many research studies have stressed the importance of educating the children in the early years in planning and preparedness for disasters. School children are mostly affected in the recent disasters and it shows that the current educational system is not enough to teach the consequences of the disasters to the students and the teachers. Implementing Technology for imparting knowledge regarding the disaster was found effective in many research studies

An Interactive multimedia package was prepared with an urge to create awareness among the school children to equip them to safeguard themselves, their family and community. The main objective of the present study is to develop and validate the Interactive Multimedia Package on Disaster Management Learning Activities for School students. The Interactive multimedia package was developed and validated.

VII. ACKNOWLEDGEMENT

This project is fully funded by impress-ICSSR, and I thank ICSSR for sanctioning the project and funding it without which the project will not exist.

I express my high esteem and profound sense of gratitude to our honorable vice chancellor Prof.Dr.P.Kaliraj for providing all facilities for completing this project within the stipulated time at all levels.

I wish to register my gratitude to Dr.K.Murugan and Dr.Murugavel Regitrar i/c , Bharathiar University for enabling me to proceed with the project work successfully.

I record my sincere thanks to Dr.S.Singaravel Head, Department of Education, Bharathiar University for his constant encouragement.

I record my sincere thanks to Dr.A.R.Bhavana,Head i/c, Department of Educational Technology for giving me her positive comments and suggestions for my project.

I express my profound thanks to Dr.M.Parthasarathy, Assistant Professor, Department of Educational Technology for rendering help in multimedia package development. I was also benefited by the constant enquiries and valuable suggestions of Dr.T.Enok Joel, Assistant Professor, Department of Educational Technology regarding the proceedings of the project.

I wish to express my sincere thanks to all Subject experts and Technical experts for guiding me in the development of Interactive Multimedia Package.

I register my heartfelt thanks to Mr.J.Dominic Arockiaraj, Research Assistant for his sincere, thorough and constant support provided throughout the project works without which the project might not have been reality.

I would like to thank all the Head masters and Headmistress of Government and Aided school for permitting me to conduct my research in their school and providing me the sample of school students willingly.

I extend my profound thanks to the tenth standard students for accepting to participate in this experimental study and cooperating with me throughout the period of data collection.

Finally I wish to record my sincere thanks to all who have helped this project a grand success.

BIBILIOGRAPHY

[1] Ahmad N. A. (2020) Learning Reading Skills Independently Using Interactive Multimedia. Universal Journal of Educational Research, 8(6):2641-2645. DOI: 10.13189/ujer.2020.080647

[2] AlHinai, Y. S. (2020). Disaster management digitally transformed: Exploring the impact and key determinants from the UK national disaster management experience. International Journal of Disaster Risk Reduction, 51, 101851.

[3] Arono, A. (2014). Improving students listening skill through interactive multimedia in Indonesia. Journal of Language Teacing and Research.

[4] Ashar, F., Amaratunga, D., Sridarran, P., & Haigh, R. (2018). Practices of tsunami evacuation planning in Padang, Indonesia. In Coastal Management: Global Challenges and Innovations. https://doi.org/10.1016/B978-0-12-810473-6.00019-4

[5] Ayyagari, R., & Tyks, J. (2012). Disaster at a university: A case study in information security. Journal of Information Technology Education, 11, 85-96

[6] Barclay, J., Few, R., Armijos, M. T., Phillips, J. C., Pyle, D. M., Hicks, A., Brown, S. K., & Robertson, R. E. A. (2019). Livelihoods, Wellbeing and the Risk to Life During Volcanic Eruptions. Frontiers in Earth Science, 7. https://doi.org/10.3389/feart.2019.00205

[7] Chong, N. O., & Kamarudin, K. H. (2018). Disaster risk management in Malaysia: Issues and challenges from the persepctive of agencies. Planning Malaysia, 16(5).

[8] Devi ,rajeshwari (2014)Development and Testing of Multimedia Package on Disaster Management for Primary school students ,Ph.d.Thesis

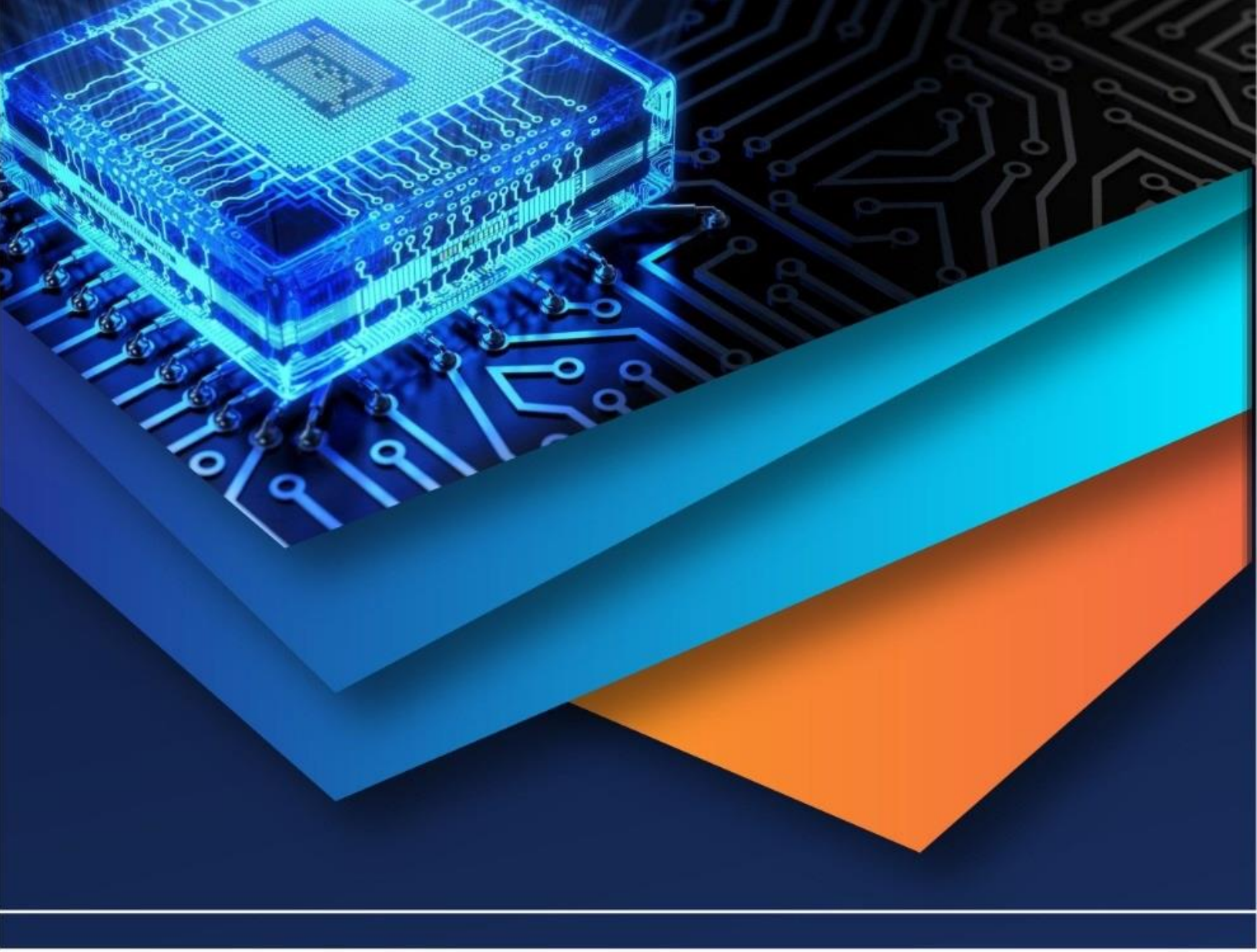
[9] Dewanti, D. S., Ayuwat, D., & Yongvanit, S. (2019). Household disaster management capacities in disaster prone II area of Mt. Slamet. Jàmbá: Journal of Disaster Risk Studies, 11(1), 1-7.

[10] Dikshit, J., Garg, S., & Panda, S. (2013). Pedagogic Effectiveness of Print, Interactive Multimedia, and Online Resources: A Case Study of IGNOU. International Journal of Instruction, 6(2), 193-210.

[11] Dikmenli, Y.; Yakar, H.; Konca, A. (2018). Development of Disaster Awareness Scale: A Validity and Reliability Study. Review of International Geographical

Education Online (RIGEO), 8(2), 206-220. Retrieved from http://www.rigeo.org/vol8no2/Number2Summer/RIGEO-V8-N2-2.pdf
[12] Ganpatrao, J. (2014). Knowledge and practices of school teacher regarding disaster management. International Journal of Health System and Disaster Management, 2(2), 98. https://doi.org/10.4103/2347-9019.139055
[13] Gariano, S. L., & Guzzetti, F. (2016). Landslides in a changing climate. In Earth-Science Reviews (Vol. 162). https://doi.org/10.1016/j.earscirev.2016.08.011
[14] Jung, D. Y., & Ha, K. M. (2021). A Comparison of the Role of Voluntary Organizations in Disaster Management. Sustainability 2021, 13, 1669.
[15] Kaur, J. (2006). Administrative issues involved in disaster management in India. In International Review of Psychiatry (Vol. 18, Issue 6, pp. 553–557). https://doi.org/10.1080/09540260601038449
[16] Khorram-Manesh, A. (2017). Youth Are Our Future Assets in Emergency and Disaster Management. Bulletin of Emergency and Trauma, 5(1), 1–3.
[17] Kim, J., & Ashihara, K. (2020). National disaster management system: COVID-19 case in Korea. International journal of environmental research and public health, 17(18), 6691.
[18] King, J., Edwards, N., Watling, H., & Hair, S. (2019). Barriers to disability-inclusive disaster management in the Solomon Islands: Perspectives of people with disability. International journal of disaster risk reduction, 34, 459-466.
[19] Komalasari, K. (2019). Living Values Based Interactive Multimedia in Civic Education Learning. International Journal of Instruction, 12(1), 113-126.
[20] KRISHNAMURTHY, R. Enabling A Culture Of Disaster Preparedness Introduction Of Disaster Management In School Curriculum A Case Study Of Chennai India.
[21] Mangone, E. (2018). From Calamities to Disasters: Pitirim Aleksandrovič Sorokin's Insights. Human Arenas, 1(1). https://doi.org/10.1007/s42087-018-0001-2
[22] Marskole, P., Mishra, A., Kumar, P., Gaur, P., Aharwar, P., Patidar, P., & Shejwar, P. (2018). A study to assess awareness on disaster management among school going children in Gwalior (M.P.). International Journal Of Community Medicine And Public Health. https://doi.org/10.18203/2394-6040.ijcmph20180949
[23] Mehta, A. M., Bruns, A., & Newton, J. (2017). Trust, but verify: social media models for disaster management. Disasters, 41(3), 549-565.
[24] NAPERE JR., R. D., & CANENCIA, O. P. (2014). Exploring the Disaster Management of Teachers and Pupils in Iligan City, Philippines. IAMURE International Journal of Ecology and Conservation, 8(1). https://doi.org/10.7718/ijec.v8i1.749
[25] NAYAR K, A., & Barker, M. (2014, June). Computer labs as techno-pedagogical tools for learning biology-Exploring ICT practices in India. In Asia-Pacific Forum on Science Learning & Teaching (Vol. 15, No. 1).
[26] Nirmal Swapnil Balachandra (2010)Development of Computer Multimedia Software Package on Disasters and Disaster Management content included in Ninth Standard Syllabus of Maharastra state -A study,Ph.D.Thesis
[27] Nojavan, M., Salehi, E., & Omidvar, B. (2018). Conceptual change of disaster management models: A thematic analysis. Jàmbá: Journal of Disaster Risk Studies, 10(1), 1-11.
[28] Phengsuwan, J., Shah, T., Thekkummal, N. B., Wen, Z., Sun, R., Pullarkatt, D., ... & Ranjan, R. (2021). Use of Social Media Data in Disaster Management: A Survey. Future Internet, 13(2), 46.
[29] Purpura, P. P. (2019). Life Safety, Fire Protection, and Emergencies. In Security and Loss Prevention. https://doi.org/10.1016/b978-0-12-811795-8.00013-8
[30] Pratha, A. A., Priya, V. V., & Gayathri, R. (2019). Awareness on environmental hazards among school students–A questionnaire survey. Drug Invention Today, 11(6).
[31] Rachmadtullah, R. M. S. Z., Ms, Z., & Sumantri, M. S. (2018). Development of computer-based interactive multimedia: study on learning in elementary education. Int. J. Eng. Technol, 7(4), 2035-2038.
[32] Rivera, J., Ceesay, A. A., & Sillah, A. (2020). Challenges to disaster risk management in The Gambia: A preliminary investigation of the disaster management system's structure. Progress in Disaster Science, 6, 100075. https://doi.org/10.1016/j.pdisas.2020.100075
[33] Satapathy, S., & Walia, A. (2007). Affected Parents' and Other Stakeholders' Perception of a Fire Disaster Management in India: A Situational Analysis. Disaster Management and Response, 5(4). https://doi.org/10.1016/j.dmr.2007.08.002
[34] Septiani, A. N. N. S. I., & Rejekiningsih, T. (2020). Development of Interactive Multimedia Learning Courseware to Strengthen Students' Character. European Journal of Educational Research, 9(3), 1267-1280.
[35] Shah, A. A., Gong, Z., Pal, I., Sun, R., Ullah, W., & Wani, G. F. (2020). Disaster risk management insight on school emergency preparedness – A case study of Khyber Pakhtunkhwa, Pakistan. International Journal of Disaster Risk Reduction, 51. https://doi.org/10.1016/j.ijdrr.2020.101805
[36] Shah, A. J. (2011). An overview of disaster management in India. WIT Transactions on the Built Environment, 119. https://doi.org/10.2495/DMAN110081
[37] Sharma, V. K. (1997). Natural Disaster Management in India. Indian Journal of Public Administration, 43(3). https://doi.org/10.1177/0019556119970343
[38] Shiwaku, K., Shaw, R., Kandel, R. C., Shrestha, S. N., & Dixit, A. M. (2007). Future perspective of school disaster education in Nepal. Disaster Prevention and Management: An International Journal, 16(4). https://doi.org/10.1108/09653560710817057
[39] Tsai, M. H., Chen, J. Y., & Kang, S. C. (2019). Ask Diana: A keyword-based chatbot system for water-related disaster management. Water, 11(2), 234.
[40] Tetsushi, K., Akiko, N., Miki, K., & Sisira, R. N. C. (2006). Tsunami public awareness and the disaster management system of Sri Lanka. Disaster Prevention and Management: An International Journal, 15(1).
[41] V, S. (2018). Climate Change and Disaster Management in India. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3153859
[42] Wang, J. J. (2016). Study on the context of school-based disaster management. International Journal of Disaster Risk Reduction, 19. https://doi.org/10.1016/j.ijdrr.2016.08.005
[43] Wiana, W., Barliana, M. S., & Riyanto, A. A. (2018). The Effectiveness of Using Interactive Multimedia Based on Motion Graphic in Concept Mastering Enhancement and Fashion Designing Skill in Digital Format. International Journal of Emerging Technologies in Learning, 13(2).
[44] Widodo, W., Sudibyo, E., Suryanti, S., Sari, D. A. P., Inzanah, I., & Setiawan, B. (2020). The effectiveness of gadget-based interactive multimedia in improving generation z's scientific literacy. Jurnal Pendidikan IPA Indonesia, 9(2), 248-256.
[45] Zarshenas, L., Keshavarz, T., Momennasab, M., &Zarifsanaiey, N. (2017). Interactive multimedia training in osteoporosis prevention of female high school students: An interventional study. ActaMedicaIranica, 514-520.

Weblinks
https://agritech.tnau.ac.in/environment/envi_pollution_intro.html
https://www.britannica.com/technology/interactive-media
https://cosmosmagazine.com/geoscience/why-do-volcanoes-erupt/
https://courses.lumenlearning.com/geophysical/chapter/cyclones/
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http://tsunami.org/what-causes-a-tsunami/
https://www.usgs.gov/special-topic/water-science-school/science/droughts-things-know?qt-science_center_objects=0#qt-science_center_objects
https://youmatter.world/en/definition/definitions-what-is-definition-deforestation-causes-effects/#:~:text=Deforestation%20refers%20to%20the%20decrease,%2C%20biodiversity%2C%20and%20the%20climate.
http://www.researchgate.net
http://science.gov
http://mdpi.com
http://doaj.org
http://docplayer.net
http://hdl.handle.net/10603/62718
http://hdl.handle.net/10603/34299
https://www.academia.edu/36849482/From_Calamities_to_Disasters_Pitirim_Aleksandrovi%C4%8D_Sorokin_s_Insights
https://www.researchgate.net/publication/307998846_Study_on_the_Context_of_School-based_Disaster_Management
https://journals.sagepub.com/doi/10.1177/0019556119970343
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