From meteorites to impact craters: a geologic journey through the solar system

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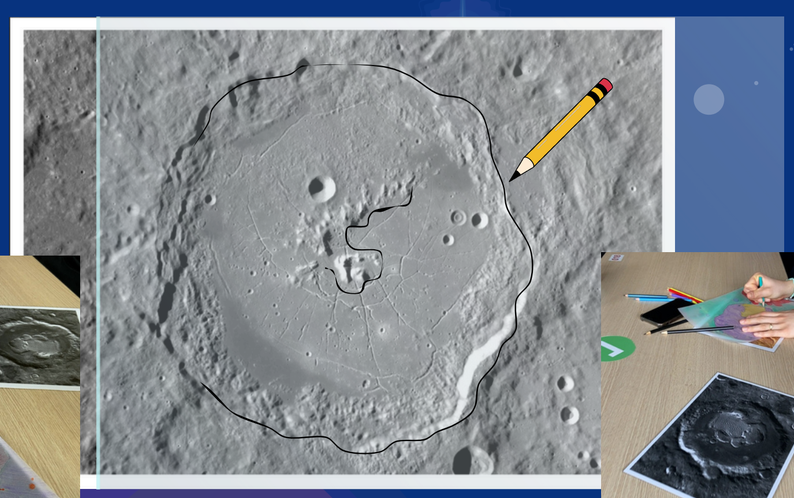
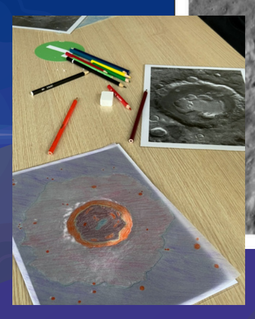
WE PRESENT HERE AN INTERACTIVE OUTREACH ACTIVITY FOR SCHOOLS WHICH CAN BE ADAPTED FOR STUDENTS RANGING FROM ELEMENTARY TO HIGH SCHOOL. THE OBJECTIVE IS TO DIVULGE INFORMATION ABOUT THE ORIGIN OF THE SOLAR SYSTEM AND ITS PLANETS, WITH A SPECIAL FOCUS ON METEORITES, IMPACT PROCESSES AND MAPPING ON THE SURFACE OF MARS AND THE MOON. THE ACTIVITY IS STRUCTURED IN TWO PARTS

SOLAR SYSTEM BODIES + MAPPING ACTIVITY

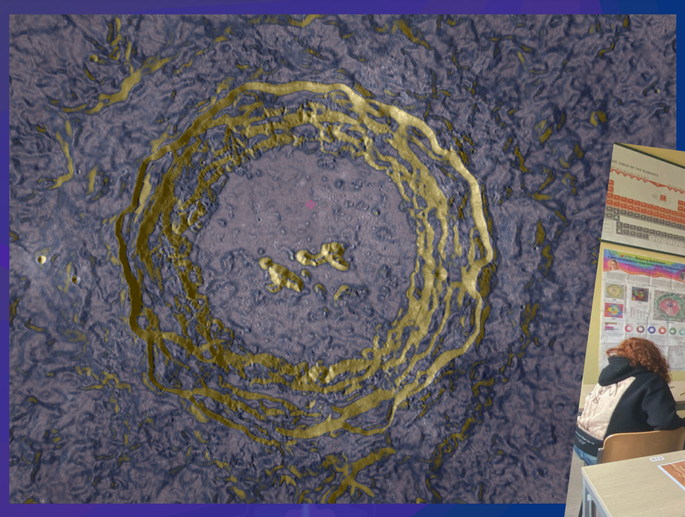
1) SHORT POWERPOINT PRESENTATION TO MAKE THE STUDENTS FAMILIARIZE WITH SOME GENERAL INFORMATION ABOUT SOLAR SYSTEM BODIES (E.G., MOON AND MARS).

2) MAPPING GEOLOGIC FEATURES ON THE MOON AND MARS, ALONE OR IN SMALL GROUPS.





3) DISCUSS ALL TOGETHER SUITABLE LANDING SITE AREA WITHIN THE MAPPED REGION. IMAGES OF SLOPES AND OTHER ENGINEERING CONSTRAINTS ARE SHOWN ON A PROJECTOR.



METEORITES AND THE ORIGIN OF THE SOLAR SYSTEM

1) SHORT POWERPOINT PRESENTATION WITH A GENERAL INTRODUCTION ON METEORITES.

2) IDENTIFICATION WITH THE NAKED EYE: TERRESTRIAL ROCKS, TEKTITES AND FOUNDRY SLAG ARE MIXED WITH REAL METEORITES.

3) CHARACTERIZATION OF CHONDRITE THIN SECTIONS UNDER OPTICAL MICROSCOPES BASED ON CHONDRULE ABUNDANCE, SHAPE AND SIZE AND AMOUNT OF METAL PHASES.

PHOTO CREDITS: BARBARA PAKNAZAR

APPLICATION

THIS OUTREACH PROJECT HAS BEEN APPLIED AS A PART OF PIANO LAUREE SCIENTIFICHE (PLS), L-34 GEOLOGIA, AT THE DEPARTMENT OF GEOSCIENCES, UNIVERSITY OF PADOVA, ITALY. PLS IS A NATIONAL PROGRAM AIMED AT ITALIAN HIGH SCHOOLS, PROMOTING ENROLLMENTS IN SCIENTIFIC DEGREE COURSES, REDUCTION OF UNIVERSITY DROPOUT, AND OTHER INITIATIVES AIMED AT STUDENTS AND TEACHERS. THIS SPECIFIC PROJECT WAS DELIVERED AS A 2H-LONG LABORATORY ACTIVITY TO TWO HIGH SCHOOL CLASSES.

FINAL REMARKS

OUR STRATEGY ADOPTS AN ENGAGING APPROACH, MAKING USE OF MOSTLY PRACTICAL ACTIVITIES. GOING BEYOND THE TRADITIONAL CLASSROOM SETTING, WE MAKE LEARNING MUCH MORE ENJOYABLE FOR THE STUDENTS, WHILE ALSO ENHANCING THEIR LEARNING EXPERIENCE. SIMILAR ACTIVITIES CAN BE ADAPTED EVEN FOR YOUNGER CHILDREN, GIVING THEM THE POSSIBILITY TO EXPERIENCE THE SAME LEVEL OF ENGAGEMENT AND LEARNING.