|  |  |  |
| --- | --- | --- |
| DEVELOPING ENGLISH THROUGH ART ORIENTED ACTIVITIES | | |
| PRIMARY SCHOOL BELTINCI, SLOVENIA  TEACHER: TADEJA HALAS | | |
| lesson plan: senses  **Science through Art** | resources: | |
| level: **lower secondary** | lesson number: **4** | |
| Age of students: 13,14 |  | |
| UNIT: **SENSES** | SUBUNIT: **Science through Art** | |
| GENERAL GOALS:  Students enhance or refresh their vocabulary for patterns, such as striped, polka dot, diamond, spirals…They learn whether substances from daily life are acidic, alkaline or neutral and how we can prove that with the coloration of indicators. Students use paper soaked with red cabbage colour and draw patterns with solutions of substances from everyday life, for example toothpaste, washing detergent, fruit tea. Depending on the colour the solution leaves on the paper students learn whether the element is acidic, neutral or alkaline and if the level (of acidity) is high or not. | | |
| VOCABULARY covered during the lesson:  acidic, alkaline or neutral, indicator, red cabbage colour, elements from everyday life:  toothpaste, baking powder, detergent for dishes, lemon juice, orange juice, baking soda, washing powder, fruit tea, vinegar; | | |
| REQUIRED PRE KNOWLEDGE:  General vocabulary.  Knowledge about how the indicator changes the colour in acidic, alkaline or neutral element. | | |
| PREPARATION before the lesson:  The teacher prepares (a few days in advance):  Preparation water solution of red cabbage colour: slice red cabbage and cook it in a small amount of water for 30 minutes.  Preparation of paper: use regular white paper and paint each sheet with a big brush with the red cabbage colour. For better effect apply several coats. Leave to dry.  Preparation of the solutions: Mix substances from everyday life with distilled water. Label the cups with the solutions. For each solution you also need at least one brush.  Print out handouts – DEAR resources, one for each student. Students need to write their observations during the experiments. | | |
| SPECIFIC OBJECTIVES (specify skills / information that will be learned):   * Students practise vocabulary for senses and patterns, * Students describe the elements from everyday life whether they are acidic, alkaline or neutral. * Students express themselves with painting – and anchor the knowledge. | | |
| MATERIALS NEEDED:   * IWB (whiteboard) + projector * Computer with Wi-Fi connection | | OTHER MATERIALS NEEDED:   * POWERPOINT   – things from everyday life, patterns   * Video of the colouration of the indicator * Water solutions of substances from everyday life: toothpaste, baking powder, detergent for dishes or washing powder, lemon juice, apple juice, baking soda, washing powder, fruit tea, vinegar; * Paper soaked with red cabbage colour * brushes; |

|  |  |
| --- | --- |
| TEACHER/ STUDENT |  |
| COLOURS AND PATTERNS  The teacher shows the PowerPoint presentation.  INDICATORS  The teacher shows the video of how the colour of the indicator changes with acidic, alkaline and neutral elements. The video shows and experiment, where ice cubes melt in acid (H2SO4), base (NaOH) and  distilled water  EXPERIMENTAL WORK  The teacher prepares cups with water solutions of substances from everyday life and gives the students paper soaked with the indicator. The teacher guides the students during experimental work and helps them fill in the handout with observations.  REPORT  The teacher guides the students when they report. | The students say what patterns the object in the picture has: striped, dots, spirals, flower pattern, For more advanced students: The mug has got white dots on the red surface. The pattern is dotted.  Students watch the video and revise or learn the colouration of the indicators.  Students use brushes to draw patterns with different solutions on the paper soaked with the indicator. They make sure they do not switch the brushes! They observe how the colour changes and see what the properties of this element are – acidic, alkaline or neutral. At the same time they fill in the handout with their observations.  Students practice vocabulary. At the end of the experimental work each student presents their masterpiece and says which patters is used and why the colour of the indicator has changed. The other students listen and fill in the areas they have not filled in yet. (I have used a spiral pattern. The indicator has turned \_\_\_\_\_\_\_\_(colour), because the \_\_\_\_\_\_\_\_\_\_\_ (element)is \_\_\_\_\_\_\_\_\_(acidic, alkaline, neutral). |