Lesson (title) **Pure substances and mixtures**	**Subject/Topic:** **Man and nature / Substances and their properties**
Language competence level A1 □ A2 □ B1 □ B2 □ C1 □	Prerequisites / requirements Remembering acquired knowledge on bodies, substances, the structure of substances and their structural elements (e.g. revision or preparation as regards the foreign language or the content of the subject, using the mother tongue in some parts of the lesson)
Class/grade: **fifth** Number of students in class : **15**	Age of students : **12-13** Duration of lesson(s): **40 min**
Content of lesson: Methods for separating heterogeneous mixtures	
Teaching aims/objectives Content: Ss will be able to differentiate between substance, pure substance, mixtures, and how we identify substances, what mixtures are, way of producing mixtures. Communication:Students will be able to describe pure substances and mixtures, define pure subtances and mixtures, describe the condition of pure substances and mixtures, distinguish pure substances from mixtures. Cognition: Students will be able to identify which subtance is pure and which constitutes a mixture, trace and identify facts and phenomena, compare and classify information, classify substances and mixtures based on their properties. Culture/ community/ citizenship: Ss will be able to compare the properties of substances to their application, and know why it is important to know the properties of pure substances and mixtures, as well as their use.	

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FL/NS Lesson Planning/Template based on 4 Cs (see next page) (content, communication, cognition, culture)

phase time	Content	Objective/ Competence („can-do“ statements)	Student activity	Social form/ setting	Material, media, mobile lab	Language: C2 subject specific terminology	Language : C2 communication & interaction	Teacher activity	Notes, comments on processes & outcomes = including affective outcomes, (self-) evaluation**

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trigger	Rememberi ng acquired knowledge and introducing the new topic	Students will know what is a substance, which substance is considered pure, what is a mixture, what are impurities and how are mixtures produced	Students answer the teacher's questions	Discussi on	Multimedia	- bodies - substance s - structural elements of substance s Presentam os los términos relacionad os con la química: cuerpos, sustancias , materia, mezcla, átomo y otros, y denomina mos las partículas que integran la sustancia. Recordam os términos que ya conocen de la vida	**Recordando que las mezclas** son combinacion es de dos o más sustancias puras, que tienen varias sustancias. **Las mezclas son** homogéneas y heterogénea s. ¿Qué mezclas son heterogénea s?	Asking questions to students in order to consolidate acquired knowledge which will be useful in the new topic	**Consolidating acquired knowledge on:** bodies, substances, structural elements of substances

hypothesis	Introducing new notions	Students will acquire knowledge on what substances are, which substance is considered pure, what mixtures are, what impurities are and how mixtures are produced	Students do the tasks in the worksheets as instructed by the teacher and watch the multimedia	Lecture, discussion, presentation	Multimedia, data sheet	- pure substances - mixtures - impurities Qué sustancias es pura, qué son las mezclas, cómo reconocer las impurezas.	¿Qué mezclas se pueden separar: las heterogéneas o las homogéneas? ¿De qué manera se pueden separar los distintos componentes de la mezcla?	Introducing new notions -pure substances, mixtures, impurities	**Students must be able -to use the new terms in the foreign language, as well as in their mother tongue:** -to identify pure substances and mixtures, what impurities are, -to describe the properties of pure substances and mixtures, -to define the components of mixtures -to determine the application of substances and mixtures based on their properties

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experimentation, (processes, results) verification of hypothesis	Experiments	Students can - identify pure substances and mixtures, what impurities are· -define the components of the mixture· -determine the application of substances and mixtures based on their properties·	Students do exercises and perform the corresponding experiments	Team work, individual work, whole class	worksheets, lab equipment and substances	Se realizan experimentos: -agregar azúcar a la limonada -mezclar agua con aceite -agregar diluyente a una pintura -poner tintura en el agua.	Precipitación, imantación, filtración, evaporación, cristalización, según la composición de la mezcla heterogénea. Para el pasador, el aserrín, el trigo, la paja, los áridos, la arena, el agua, el azúcar, la harina ¿se usan los mismos métodos de separación?	Dividing the class into groups, supervising the successful completion of the students' work and providing the necessary assistance	Students must - identify which substances are pure and which are mixtures - define, distinguish and classify the materials based on their properties

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conclusion	Outcomes	Students can proceed to the necessary summaries and conclusions of the experiments performed	Drawing conclusions and proceeding to analysis	Plenary	Paperboard	La sustancia pura es toda materia que presente una composición y propiedades fijas en cualquier parte de esta, independientemente de su procedencia.	Cada componente de una mezcla conserva sus propiedades.	Analyzing and summarizing the outcomes of projects or guiding students to write their own summaries and analyses	

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transfer generalization application	Summarizing and consolidating new knowledge: students acquired knowledge on pure substances and mixtures, developed skills in order to describe substances and mixtures, to present important mixtures used in everyday life by using examples, and to define their properties	Students proceed to the necessary summaries and conclusions drawn by the conducted projects· they hand in in writing, based on a model, the results of the experiments – air, soil, rocks, medicines ... are mixtures, why we should know their properties and what problems result from the pollution of air, soil and water	Comparing the properties of different substances and mixtures· analyzing and summarizing	Discussion, summary	Worksheets		Los métodos de separación dependen del estado de los componentes de las mezclas (líquido, sólido, gaseoso).	Analyzing and summarizing the outcomes of projects or guiding students to draw up their own summaries and analyses	**Defining the relation between properties of pure substances and mixtures and their application in everyday life**

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FL/STEM and the domains of the 4Cs

C1	Content / Learning outcomes	"know" (content) "be able to" (content, communication) "be aware" (content, cognition)
C2	Communication: Language learning & Interaction	Vocabulary (revisited/new) Vocabulary (new): subject matter specific (CALP) Vocabulary (new): general (BICS) Structures (focus on grammar) Language functions (information, argumentation, questioning, reasoning)
C3	Cognition / cognitive processing: LOTS & HOTS	Remembering / Identifying Comparing Classifying Predicting Reasoning Synthesizing / creating
C4	Culture / Community	Awareness (of scientific topic as relevant for the culture / community) Involvement (project continuation outside of classroom) Communication (proliferation of scientific results in community)

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****Note:** *this column refers to the lessons implemented during the school year 2015-2016. The comments concern exclusively the academic hours the lesson was made and because of the uniqueness and diversity of each class, it should not be expected to be exactly the same during another lesson*.

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