Creativity, Arts and Science in Primary Education


# Training Material

## Content



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## The CASE Project and Inquiry based science education

In CASE, primary teachers are agents of change.

Dear teacher,

**This document is a template which the CASE project places at your disposal in order to encourage you to plan, document and communicate creative teaching sequences. In CASE, science and the arts are intertwined. Based on pre-existing creative CASE materials, we would like to invite you to take the exciting journey of developing your own ideas for how your classroom may *feel*.**

CASE aims to empower teachers' profession with skills and competencies which will enable them to widen their teaching capabilities by strengthening creativity in the classroom. Our approach to creativity lies at the intersection of science and art in education.

Inquiry Based Science Education (IBSE) is a method of teaching and learning that focuses on use of questions, problems, and educational scenarios used to engage students in concepts of science and support their acquisition of scientific knowledge and skills. This is achieved through their **active participation** in activities that make sense to the students, chiefly due to the fact that they are largely initiated by those students. Students understand in-depth the scientific concepts through their own perception of the world that surrounds them and through their own experiences and reflective processes.

**In CASE, science and the arts are intertwined**. The interaction between these fields within IBSE requires creative solutions on the part of both students and teachers, and enables new ways of thinking about the science curriculum, as shown below.

Various approaches have been developed for IBSE implementation. In CASE, a core cycle of query, evidence collection, analysis, explanation, connection, communication and reflection (see Figure 1) is adopted, based on previous initiatives in the field (e.g. the CREATIONS project[1]).

[1] www.creations-project.eu / H2020-EU Project reference: 665917



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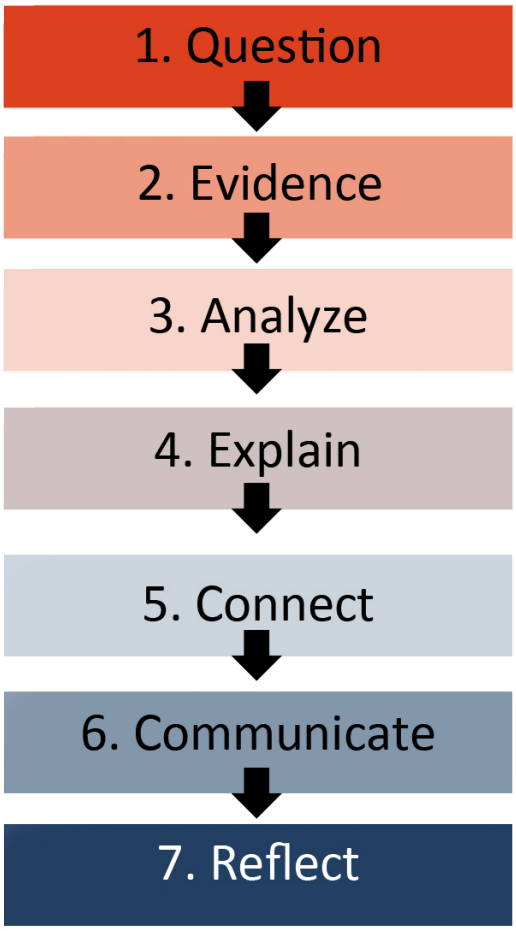


*Figure 1: Phases of IBSE*

This cycle emphasizes the need for students to engage in creative processes, through which they will act as young scientists and communicate science. In Figure 2, actions that students perform in each IBSE phase are briefly shown.



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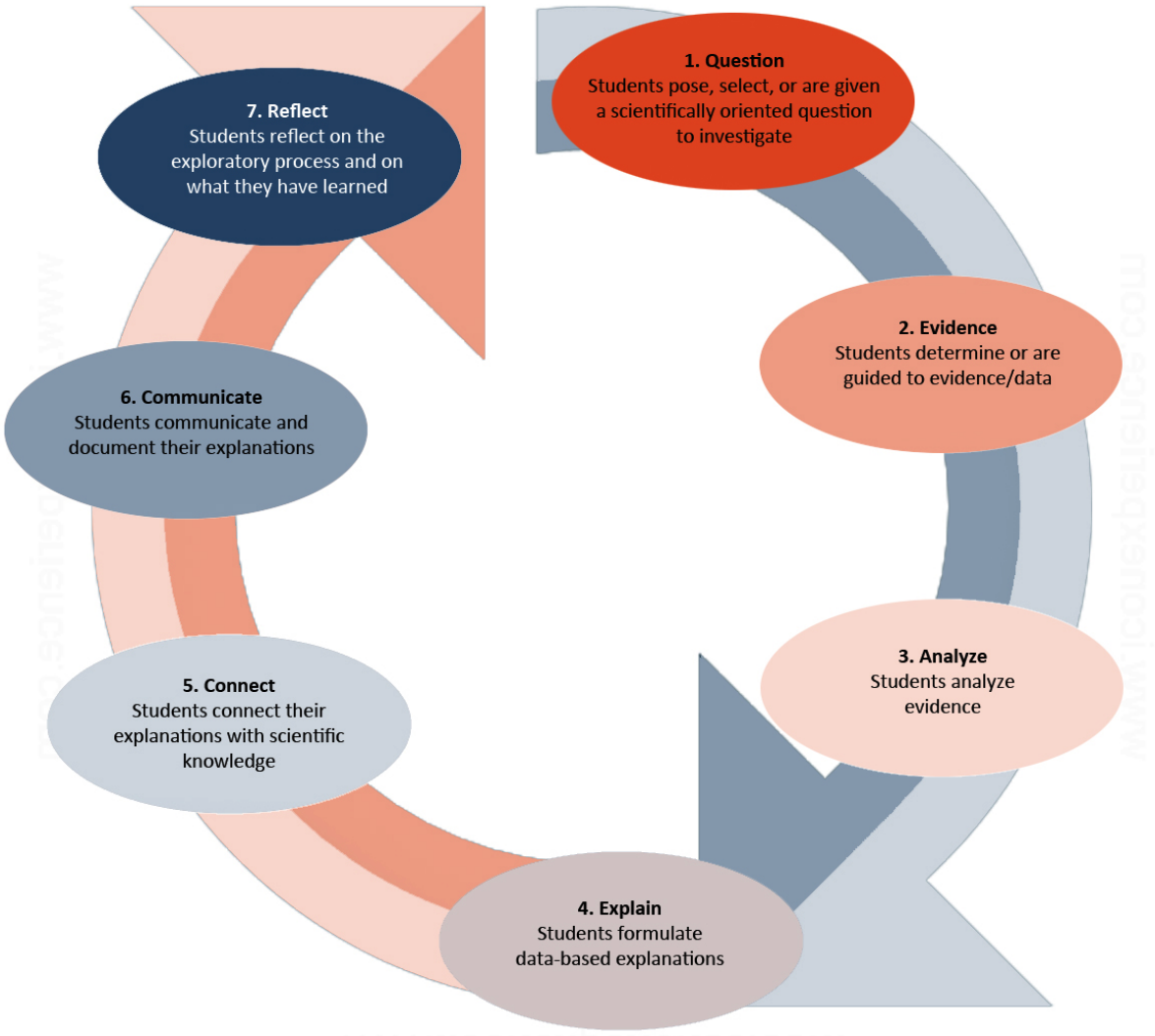


*Figure 2: Student actions at each stage of IBSE*



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# “Learning science through singing”

We all have a built-in instrument in our body — our voice. We use it constantly for speaking, but when it comes to singing, there is this hard-to-kill-myth saying that “either you can or you can’t.”

The fact is, however, that your singing voice is an instrument that can be taught and trained much like any other physical activity. You just need to do the work.

Singing shouldn’t only be for those who *already* know how to do it. Singing can be many things, and it doesn’t have to (and shouldn’t!) sound beautiful all the time. Through playing, creativity and exploration in a safe environment the student can get to know their own and each other's voices.

## Some words about the activity

In this toolkit we aim to use singing as a base for learning science.

We have explored three ways to work with topics in this area.

1) Playing with sound from the voice serves as a starting point for testing room acoustics.

2) Using the voice and playing with sounds as a starting point for your imagination. This in turn can be used to create sound images / soundscapes.

3) Acquisition of knowledge about voice function and biology will expand the understanding of how everything is connected. Learning about different singing styles allows children to test their own voice and the many different expressions found in it, in a scientific context.

## Implementation phases

Below you find a description of the implementation phases of the science and singing activities. We will show you three different examples of how you can work with singing in your teaching; Acoustics, fantasy and biology. It is recommended that you read all three examples, as some of it can apply to all. Good luck!



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## PHASE 1. QUESTION


### KEY CHARACTERISTICS

The students get a question to answer using their own and their fellow students' voices.

### EDUCATORS' ACTIONS

The teacher prepares the students for using their voice by presenting different exercises/songs.

### STUDENTS ACTIONS

The students actively engage with the teacher's suggestions of how to use their voice and body, and suggest their own sounds and songs.

### EXAMPLE

**For all three examples:**
The students create a circle. The teacher prepares the class by finding a common focus, warming up their bodies physically and warming up their voices (see document about warming up exercises). The teacher could benefit from using the "Call and Response" technique (see example) and a playful approach to sound-making and singing. The teacher needs to be open, be bold enough to make strange noises and be silly using the voice in different ways.

The teacher explains that we all have different voices, and that this is a great thing. This is what is unique about having a voice! Some people have trained their voice to hit the note



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flawlessly and have a perfect rhythm whilst others have not. The best thing is then to just sing nonetheless and slowly get used to it. The voice will "obey" after some exercise.
Students who volunteer can demonstrate sounds with their voice. Can others make the same sound?

The teacher explains how the throat vibrates to produce sound waves, about vocal cords and lungs.
The teacher demonstrate a song by singing first, one line at the time.

(What kind of song should you teach them? Well, it depends. It should be something you feel you as their teacher feel you can master. Feel free to pick a song — or part of a song — that you like. If you like the song, chances are that your students will be "infected " by your enthusiasm. If you're an experienced singer and are able to learn new songs fast, ask the students to come up with a suggestion!)

If you want to work with sound volume you can sing loud/quiet and make loud/quiet sounds. You could for instance rehearse a song/ a round and take turns directing/ conducting in the front. The director would use their hand to communicate the desired strength/ volume.

**Questions to ask:**
How do we make small, thin sounds? How much air do we use?
How about large, open sounds?
How big/small is the oral cavity when you make sounds?
What role does the resonance cavity in the mouth play for the sound?
How can you sing with a sharp or hollow sound?
How do you use the breath from the lungs to sing strongly and weakly?

**Fantasy, science and song**
If you are working with the scientific topic of space, ask questions relating sound to space. Example: Can you make sound in space? /What sounds can you make in space? What sound does a black hole make? If space had a sound, what would it be? … are all examples of creative approach questions.

(Why play this game?
Because all development starts by imagining doing something that you couldn't do already. And then you need to be attentive to the new things you discover!)



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**Example of what a single voice can do:**
https://www.youtube.com/watch?v=Km2naEAuR-8&list=PLA0vUVDmcmVUIwrEGg5sbuvHHOkznKarM&index=2
https://youtu.be/Dp3K_MX7ANQ

**Questions to ask:**
How does the brain work, and our internal language?
What parts of the brain are active when we think and talk and sing?
What could a dream language sound like, if you use your imagination?
How can we hear conversations in our dreams when we sleep and the room is completely silent? And, when we are awake, how can we hear our own thoughts when they are not spoken?
How is sound projected in different mediums?
How is sound perceived where there is no air or water?

**Biology and song**
Everyone has a body and we all have a built-in voice, an instrument in the body. Whilst a lot of people think singing is just about talent or the lack thereof; the truth is that a singing voice as an instrument can be trained in the same way as other physical instruments.

The teacher continues about the voice:
When we make sounds with the voice two small vocal cords vibrate against each other in the throat, utilizing the air we breathe out. Then it is the brain that decides and signals to muscles and tendons around the vocal cords to tighten or loosen, responding to what the brain has instructed. The teacher also explains about voice change (most distinct in boys, but girls experience it too.)

**Links:** https://kidshealth.org/en/kids/changing-voice.html
https://www.youtube.com/watch?v=rjibeBSnpJ0

**Example of breathing exercise:**
The students form a circle and the teacher explains about our lungs: When we breathe in - demonstrate! Does the stomach go out? Put your hand on your stomach to make it more tangible. The_diaphragm pushes the intestines down and out to make room for the expanded lungs. When we breathe out, the stomach goes back in. The students feel their own stomachs and try to let it go out when they breathe in. (Be aware! Many people only breathe with the highest part of their chest and then the stomach does not go out).

**Questions can be:**



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How can we make sounds with the voice and how can we use the body to change this sound and thereby sing in completely different ways?

How does it sound when everyone sings the same way?
Do you know anyone with very different voices (people you know, from television and so on)? Why do you think it is like this?

**Links** on how you can warm up and get the students feel safe using their own voice:
Warm up: https://vimeo.com/481716473/1f5f01730a
Call and response: https://vimeo.com/481714737/1284bd1c16
Call and response with cajun: https://vimeo.com/481714021/08e2cfdb34
The invisible ball: https://vimeo.com/481715453/6fa456efaa
Pass the sound around: https://vimeo.com/481715949/10367e01ea



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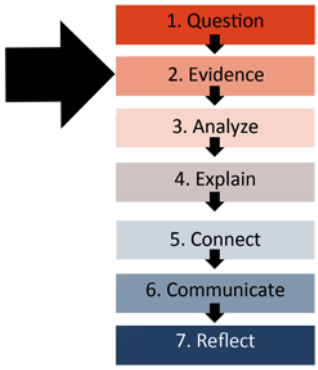
## PHASE 2. EVIDENCE




### KEY CHARACTERISTICS

The students look for information by discussing with each other and by experimenting with their voices

### EDUCATORS' ACTIONS

The teacher asks questions and initiates discussion between the students

### STUDENTS' ACTIONS

The students produce sound/song, listen and give feedback on the sound produced

### EXAMPLE

**Acoustics:**

The class goes to different rooms at the school, such as the PE (gym) room, a tight storage room with books, the canteen, etc. and in each room you do this:

The teacher gives the tone and starts and stops the song, leads the exercise with sound-making/testing. The students are instructed to make vocal sounds in each room and to listen out for how the sound changes in these different spaces. He/she explains about sound waves, and encourages the students to really feel how they experience singing in these different sound conditions.

They compare the rooms. The class is then divided into two groups and the students (group by group) are instructed to try out different ways of making sound.



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By testing out different vowels and by keeping the mouth open and closed such as Mmmm and Aaa…they will experience how the sounds will carry. The group that is not singing will test how well they can hear the sound at the opposite side of the room.

The exercise can be led by the teacher or alternatively in an unstructured (not led) way, with the students are testing the grounds. The teacher will ask the students to project different volumes and to take note of how the sound acts in the different spaces at different volumes.

**Links:**
An example of how sound can change from one room to another:
"The wikisinger" - a music video where a singer sings the same song in many different rooms: https://www.youtube.com/watch?v=dWNV_JFolLg&t=99s

Video of a room with high acoustics:
https://youtu.be/Pur9WqECc60
Acoustics and voice:
https://mccraystudio.com/how-acoustic-affects-singer-performance/
https://www.youtube.com/watch?v=PKengo7y28U
What it is like to be a singer in different rooms, and how the acoustics can affect the presentation.
https://mccraystudio.com/how-acoustic-affects-singer-performance/

**Questions to ask:**
What do you hear?
How soft can you sing? How loud?
What do you do with your body to sing in a higher volume? And quieter?
How does the loud/softer sound affect your body?
Do the sound waves change when you make a louder sound with the same note?
How does the sound wave change when you change note?
Does a strong volume make you tired? How do different sound waves affect different people? What is noise and what is just sound?
What happens when we hear many different frequencies from many different sources at the same time?
What happens to the sound waves?
What is this room like? What do the walls, ceilings and floors look like?
How will you describe the size and volume of the room?
How will you describe what happens when you start singing in this room?
Is it difficult or easy for the sound to be projected?



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Does it create an echo? Is there a long after-sound in the room?
Does it feel good to sing here? Why do you think this is?
Are there curtains or other objects with fabric here?
What volume do you use when you are singing? Can you vary this?
Which sounds carry the furthest? Closed sounds like Mmmmm or open sounds like Aaa?
Does it have anything to do with sound waves?
Which pitch carries the furthest? Low sounds or high sounds?
What happens when you sing many tones/words in fast succession?
What does it feel like for the people listening? Is it comfortable? Is it tiring? Why?
Is it possible for the audience to distinguish different words?
Do you get any associations to rooms you have been in previously?
Does it make you want to perform a concert here?
What do you think would happen if many people entered this room?
How many people do you think could be in this room, without the sound changing drastically?

If you want to have volume/strength as a main theme you focus on voice volume and how to create sounds that are loud/soft. A mobile phone app that measures decibel (sound parameter measurement) can be a good tool.

**Fantasy, science and song:**

The teacher asks the students to suggest sounds that are made with the voice but perhaps are a bit different to "normal" singing sounds. The teacher encourages the students to be playful and to experiment with different sounds and expressions by being open for many possibilities! When someone invents a sound, others can try to imitate.

**Questions to ask:**

What sounds can you make with your voice?
How many different sounds can you make? To hum, to make rasping sounds, crackle sounds, glissando, to click with your tongue?
Can you teach the sound to the others, and will they manage to imitate you accurately?
What happens when everyone makes the same sound?
Can the sound you make, represent something specific, such as the wind or the sea?
Can you make a soundscape that no-one has the blueprint for?

How can the class as a group make the sound of a black hole, or space?



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Can the class make a fantasy picture of what the sound inside the brain is like? Could it be like voices talking about all kinds of things, at different pace and strengths or do we "sound" just like sounds in machinery?

Link to artistic images of the brain. Can you make a sound installation to the pictures with your voice?
https://mymodernmet.com/self-reflected-brain-scientific-art/

**Biology:**
The teacher brings pictures and shows basic principles of song.
The students are encouraged to experiment with their voice and to make sounds they have never made before. Can the rest of the class make the same sounds?
The class is presented with different ways of singing.
Here you should use an expert - a vocal coach who demonstrates and helps the students to test their own voice. It is a good idea to divide the class into groups and take turns working with the singing teacher.

The vocal coach demonstrates different styles and explains what they do with the tongue, oral cavity, throat, jaw and support to make the sound they wish. She/he helps the students explore different genres with different techniques by pointing at physical differences we make with body and vocal cord.

The vocal coach shows that it is possible for everyone to sing many different styles. You can choose the right expression and singing style by placing the sound and vocals in the "right" way in relation to the genre.
The groups can choose different themes and singing styles according to their own interests whilst the singing teacher provides guidance. The singing teacher asks the students to exercise trial and error and to choose styles with strong characteristics, such as opera, country, black metal, yodeling, etc.

**Links:**
How does my voice work?
https://www.templehealth.org/about/blog/how-does-my-voice-work
Singing in the MRI:
https://www.youtube.com/watch?v=J3TwTb-T044
Laryngoscopy:
https://www.youtube.com/watch?v=LqdFL0u2HLY (beatboxing)
https://www.youtube.com/watch?v=-XGds2GAvGQ (ensemble)
https://www.youtube.com/watch?v=-1Fv7IPmJo4 (opera singer)



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**Questions to ask:**
How can you get better at creating different styles when singing?
What song artists do you know, and can you imitate their sound? What happens in your throat and vocal cords when you sing, for instance county, opera etc.?



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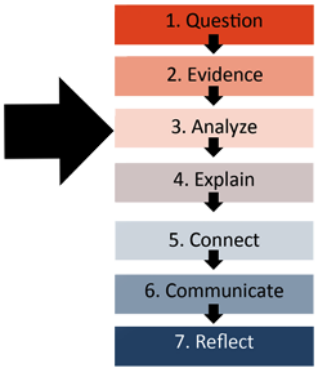
## PHASE 3. ANALYSIS




### KEY CHARACTERISTICS

The students process thoughts, conversations and continue to obtain material / information.

### EDUCATORS' ACTIONS

The teacher can direct a conversation around what the class has experienced together, with an inquiring attitude and open questions.

### STUDENTS' ACTIONS

The students process thoughts, conversations and continue to obtain material / information.

**EXAMPLE:**

**Acoustics:**



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Back in the classroom, the teacher leads a conversation about what they have been involved in, using a questioning attitude and open-ended questions.
The teacher will then present different tools that can elicit different perceptions of sound.
This can be

- a cardboard box with an egg carton inside, this will attenuate the sound a lot, when you sing into it.
- A mirror or plexi-glass with a hard, reflective surface
- A traffic cone that makes a sound and gives what feels like an amplification of the sound for the one singing into it.

The teacher asks the students to take their hand (flat hand) alternately 3 cm in front of the mouth and remove it while she / he sings an Aaaaah …

All these "small rooms" can be experimented with in the classroom and the students can come up with suggestions for other things that create a change / reflect the sound of the voice.

Students can then return to the previous rooms in small groups and make sound recordings in many different rooms. Sing the same song, so that this can get compared and possibly also mixed afterwards.

Feel free to use an app like “Keezy” https://youtu.be/SdbKSbUiJAQ
Or “BIT20Waves”
https://apps.apple.com/no/app/bitwaves2/id1351848485?l=nb&mt=8--
https://play.google.com/store/apps/details?id=com.stianremvik.bitwaves2
on tablets, which makes it possible to play the sound afterwards in an easy way. Use the school's equipment. An alternative is a sound recorder on a mobile phone.

**Questions to ask:**
What did you find?
What rooms were you in?
How were the acoustics different from room to room?
How about echo waves?
What materials were the walls and floor made of? Wood? Concrete? Tiles/stone? Carpet?



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Which frequencies carried the furthest?
How was the experience of using different decibels?
In rooms with a moist reverberation; did the sound linger so long that the language-sounds got mingled?
What happened when there was very little echo in the room?
How can you use the sound recordings you took?
How can you demonstrate the acoustics of the rooms to the audience, so they can get an experience of some of what you have experienced and learned in this project?
How can you make a concert in one of the rooms?

**Fantasy, science and song:**

The teacher divides the students into smaller groups that can choose a theme to work on such as 'the brain' (dreams, thoughts and inner language) or 'space' (tiny particles, dust, planetoids, asteroids, galaxies, black holes or the sun).
The teacher asks the students to be open and let their imaginations run wild so that they can imagine a vocal sound, put together in a pattern, which can illustrate the theme.

The teacher can ask the students to make a sound installation of an image they find of, for example, the brain or space and write text for it.

The students can use a sound recorder and collect different sounds. They can find more information and knowledge about the themes. The students can also produce lyrics about the themes, and use these together with the (perhaps) more abstract soundscapes that they create.

**Questions can be:**
What is easy and what is difficult about making sound for something that does not have a clear answer?
Can you find factual information that speaks against the soundscape you have created?
Can you find any pictures or factual information that confirms the soundscape you have created?



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What are your thoughts about challenging rules of logic and facts? How do you create your "own truth" with regard to the soundscape?

**Biology:**

The students rehearse songs in different styles and make an overview of what characterizes the different ways of singing. The students work with breath and placement of sounds to achieve the desired sound/way of singing.

The students search books, video, internet and talk to a singing teacher to find more information about how the anatomy (vocal cords, muscles and lungs) works.

**Questions can be:**

What did you find out?

What do you need to think to be able to sing the way that you want?

What happens in your body when you sing in different ways?

What does the vocal cords look like, and how do they work?

Which roles does breath and air play to sing in the style that you do?

What role does the different areas, such as mouth cavity, nose and throat, play for the sound that comes out of them?

What can you do with your tongue, face muscles, and high/low vocal cords to adjust the sound?

What happens to you when you sing music you like? Can you find articles or studies that explain what processes are triggered in the brain by song?

Suggestions for other themes around voice:

- Voice and communication. Research shows that deeper voices are more trustworthy (female newsreaders always have a deep voice, and politicians are trained to speak as deeply as possible)
- Song and memory. People with dementia have difficulty remembering who they are, but are able to remember songs and lyrics they learned early in life. https://www.youtube.com/watch?v=8HLEr-zP3fc
- Social: What happens to our self esteem when you dare to make sounds with your voice? What happens in the brain?
- What significance can it have for a person to sing with a group of people?

https://kulturoghelse.no/2018/11/man-far-en-lykkedusj-nar-man-synger-sammen-med-andre/



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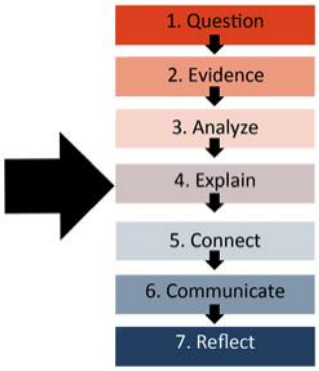
## PHASE 4. EXPLAIN




### KEY CHARACTERISTICS

The students sit in groups, process their thoughts and discuss the science behind the voice experiments.

### EDUCATORS' ACTIONS

The teacher can assist by directing the conversations around what the students have experienced. Keep a questioning attitude with open questions.

### STUDENTS' ACTIONS

The students discuss in groups and try to come up with scientific explanations of what they have experienced.

### EXAMPLES

**Acoustics:**

The students sit in groups, process thoughts and discuss the science behind the voice experiments.

The teacher helps by directing the conversations around what the students have experienced, using a questioning attitude with open questions.

**Questions to ask:**

What have you done since I saw you last?



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What spaces/rooms have you tried out?
What do you think happened in the different rooms?
How did the voice and body work?
Were there any places that proved difficult to sing in? If so, where and why do you think so? Did you expect this before you tested out the sound?
Did you get any surprises? Did anything unexpected happen in relation to sound or voice?
Were there any nice/beautiful moments? Tell us! Was some of the sound ugly? Did some of the lyrics and sound get muddled? Tell us! Why do you think it happened? What are your views?

Link with song installation of a choir. Here is a chorist in each speaker https://youtu.be/rZXBia5kuqY

**Fantasy, science and song:**

The students sit in groups, process thoughts and discuss the science behind the voice experiments.
The teacher helps by directing the conversations around what the students have experienced, using a questioning attitude with open questions.

**Questions to ask:**

How was the sound, in relation to how you had thought it was going to be?
Can any pictures or factual information support the soundscape you have created?
Can you find any information that contradicts what you have created?
How and why does it do that?
How does the image that you are working with and creating sound to, inspire you to use your imagination?
Can you edit and add effects to the audio recordings?

**Biology:**

The students formulate what they have found out about connections between their own song / sound production and what they found out about the body and anatomy from the singing teacher.

**Questions to ask:**

What did you think about the body / voice before you started this project? Did you get any surprises? What?
What do vocal cords look like and how do they work?
What role does breathing play?



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What role do the different sound spaces such as the oral cavity, nose and throat play for the sound that comes out?
What can you do with the tongue, the muscles of the face and the low / high vocal cords to adjust the sound?



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## PHASE 5. CONNECT


### KEY CHARACTERISTICS

The students discuss with each other and the teacher in an attempt to combine scientific facts with the experiences they have made.

### EDUCATORS' ACTIONS

The teacher asks open-ended questions and helps to guide the conversations.

### STUDENTS' ACTIONS

The students are actively participating, talking with each other and the teacher with the aim of finding scientific answers to what they have experienced.

### EXAMPLE

**Acoustics:**

The teacher talks to the students about what they have experienced in the different rooms, asks questions to lead the conversation further, and can assist with facts about acoustics.

He or she has the cardboard box and the plexi-glass available, so that it can be used if necessary. The teacher asks to hear some of the sound recordings they have made, for everyone to listen.

**Questions to ask:**



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Did you hear a difference in the different rooms? How do you think this was possible? What were the differences? Tell us! Were you surprised about the sound in any of the rooms?
Do you think it would have made a difference if it was only one person in the room instead of the whole class? Why is that? Do you know of any rooms/spaces outside the school area that has good acoustics? Have you ever sung there? What would happen if you yelled out loud, or whispered etc. there?

**Fantasy, science and song:**
The teacher and students look for other similar projects and research.
What do you think about real factual knowledge compared to inventing / using the imagination?
What other artists or scientists have worked out similar approaches to the issue that you chose?

**Biology:**
The teacher talks to the students about what they have experienced by using their bodies in this project, and asks questions to lead the conversation further. The singing teacher can add facts about technique and biology.
They can also look further online and in books on different approaches to learn about singing technique, as well as other exciting topics around scientifically carrying a tune.

**Link:**
https://www.medicaldaily.com/singing-tips-have-certain-skull-shape-and-other-science-behind-carrying-tune-308372



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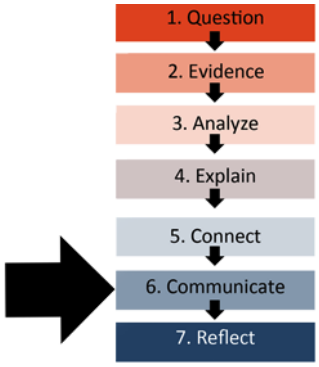
## PHASE 6. COMMUNICATION




### KEY CHARACTERISTICS

Students communicate what they have found, either by combining the use of voice and technical aids, or through a performance.

### EDUCATORS' ACTIONS

The teacher provides advice, and guides the students as needed.

### STUDENTS' ACTIONS

The students collaborate on making an open screening for their fellow students, either using the finished recordings or performing live. They explain to the audience about the scientific subject that is the basis for the performance, and allow for feedback from the audience and fellow students.

### EXAMPLES:

**Acoustics:**

The students edit the audio recordings they have already made / make new ones and carry out an open screening. There are many possibilities here.

- The class can make a mini concert in one of the rooms for another class
- Traveling concert - take the audience from room to room
- Does anyone want to sing alone in the room, or together in a small or large group?
- Will a group introduce their edited sound recording?

**Questions to ask**



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How can we show others what we have learned?
How can we say something about the scientific theme we have worked with?

**Fantasy, science and song**

The students can introduce what they have learned in different ways:

- perform a concert for a different class or the parents.
- present a voice soundscape based on imagination, around a theme that no-one has the right answer to.
- make an exhibition with sound installations of edited sound recordings of their voices. This could be in connection with a picture.
- find more information about the topics they are working with and link scientific facts around imaginative expression.
- make a performance or a video
- collaborate with one of the other projects. How about making sound/music in slow motion or bringing a live sound prop to a theatre performance?

**Biology:**

The students present what they have learned about anatomy and the voice and what they have practiced to an audience or to each other. This can be done in groups or individually. They choose songs with different styles and expressions and find props that will enhance the expression (costumes). They can also prepare an introduction of the songs that will explain how the body is physically working to obtain the desired expression. A video recording of a session with a singing teacher with trial and error is also something that could be shown.



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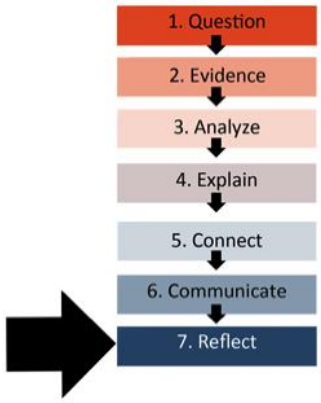


## PHASE 7. REFLECT

### KEY CHARACTERISTICS

Students evaluate their work and reflect on the learning process

### EDUCATORS' ACTIONS

It is time for evaluation. The teacher acts as a mediator, asks questions and helps the students to reflect on the process they have undertaken.

### STUDENTS' ACTIONS

The students evaluate their own and the other's work through conversation with co-students and the teacher.

### EXAMPLE:

Back in the classroom the students evaluate, together with the teacher, the process they have been through. The teacher helps by asking questions.

**<u>Questions to ask in acoustics:</u>**

What do you think of this assignment?
What was difficult to do? What was easy to do?
What was difficult to understand?
What in biology have you learned in this project?
What have you learned about acoustics?
What have you learned about sound waves?



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Was this a different way of learning about those subjects?
Did you learn more, or less, than you would in a conventional lesson?
Did you learn differently with this approach?
What was easy to understand?
What are you proud about?
If you were to make any changes about what you did, what would it be?
Why would you change it?
What do you think would have happened then?
What are you the most surprised about?
What was it like to sing together with the other students?

**Fantasy, science and song:**

What have you thought regarding challenging rules about logic and facts?
Does it feel liberating or confusing?
Have you learned anything about what your voice is capable of? Were you surprised about any of your findings?
What have you learned about facts relating to the subject you chose? (space, the brain, the sun)

**Biology:**

What do you think about this assignment? What do you remember about anatomy?
What was difficult to do? What was easy? Tell us!
What was difficult to understand? What was easy to understand? What are you proud of?
If you were to change anything, what would it be? Why would you change it? What do you think would happen if you did?
What are you most surprised about?
Have you learnt anything about what your voice can do?



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