

Google Arts & Culture

LEARN TOGETHER:

A BRIEF HISTORY OF ELECTRONIC MUSIC

MUSIC  
MAKERS  
MACHINES

# Using the lesson plan and Google Arts & Culture resources

This lesson plan is designed to support you as you explore the stories and exhibits on Google Arts & Culture related to the lesson topic. The images you will see here are just a sample of the media—texts, images, audio and video—available to you on the Google Arts & Culture website and app. As the lesson uses only resources found on Google Arts & Culture, it cannot present every aspect of a given topic. A parent or teacher might be guiding you through the lesson, or you might choose to complete it on your own.

All you need to access the lesson is an internet connection and a web browser or the Google Arts & Culture app. You may want to take notes, whether you do that digitally or with paper and pen.

The lesson plan has an **introduction**, which will describe the topic and provide some background information that will help you understand what you are seeing, hearing, and reading. Then the lesson will take you on a journey from one **Story** to another, fill in some details along the way and pose **questions** that will help you focus on important ideas. A quiz and links for **exploring the topic further** are followed by further **ideas for projects** related to the lesson topic that you can do at home or in the classroom.

The lesson plan includes **questions** about the main stories and there is also a **quiz**. You will want to write answers to the questions in a notebook or on a piece of paper. Then you can check all your answers when you've finished the lesson.

**Resources on the Google Arts & Culture** website include Themes, Stories, Museum Views, items and images.

- **Themes** bring together stories, exhibits, collections, images, audio, and video files that relate to a topic.
- In a **Story**, clicking on the arrows on the right and left sides of a slide will move you forward and backward. Just keep clicking to keep moving forward. (Note that in some stories, you scroll up and down.) Audio and videos on slides will play automatically. Clicking on an image title will take you to a page with more information about it.
- In **Museum Views**, you move through a 3D space. Click to move forward. Click, hold and move the cursor left or right to turn.
- An **item** will take you to an individual image, where you can zoom in and sometimes read more about the artefact.

## In this lesson, you will learn about:

- How electronics and electronic instruments make music.
- The early inventors of electronic instruments and how they changed music.
- How electronic music fueled social and artistic scenes around the world.
- How electronic music developed into the broad range it occupies today.

### You will:

- Explore some stories and exhibits about electronic music and musicians.
- Answer some questions about what you have seen and read.

This lesson will take **45-60 minutes** to complete.



# Learn Together: A Brief History of Electronic Music

Electronic music is so interwoven within today's culture that it is nearly impossible to define. Every type of popular music, from hip-hop to rock to K-pop and jazz, uses electronic tools, either as instruments or during recordings or performances.

When electronic music first gained popularity in the 1960s, it seemed alien. Inventors, academics, and experimental musicians created strange sounds with enormous, expensive equipment. Slowly, popular musicians began to see the potential of synthesizers. And when dance music went electronic, it exploded onto a number of diverse and thriving underground scenes that have gone on to influence nearly all of popular music today.

**As you view the exhibits and stories in this lesson, think about these questions:**

- How did electronic instruments develop and how did they change over time?
- How did electronic instruments change the way musicians make music?
- What social changes accompanied the popularity of electronic music?



# What Is Electronic Music?

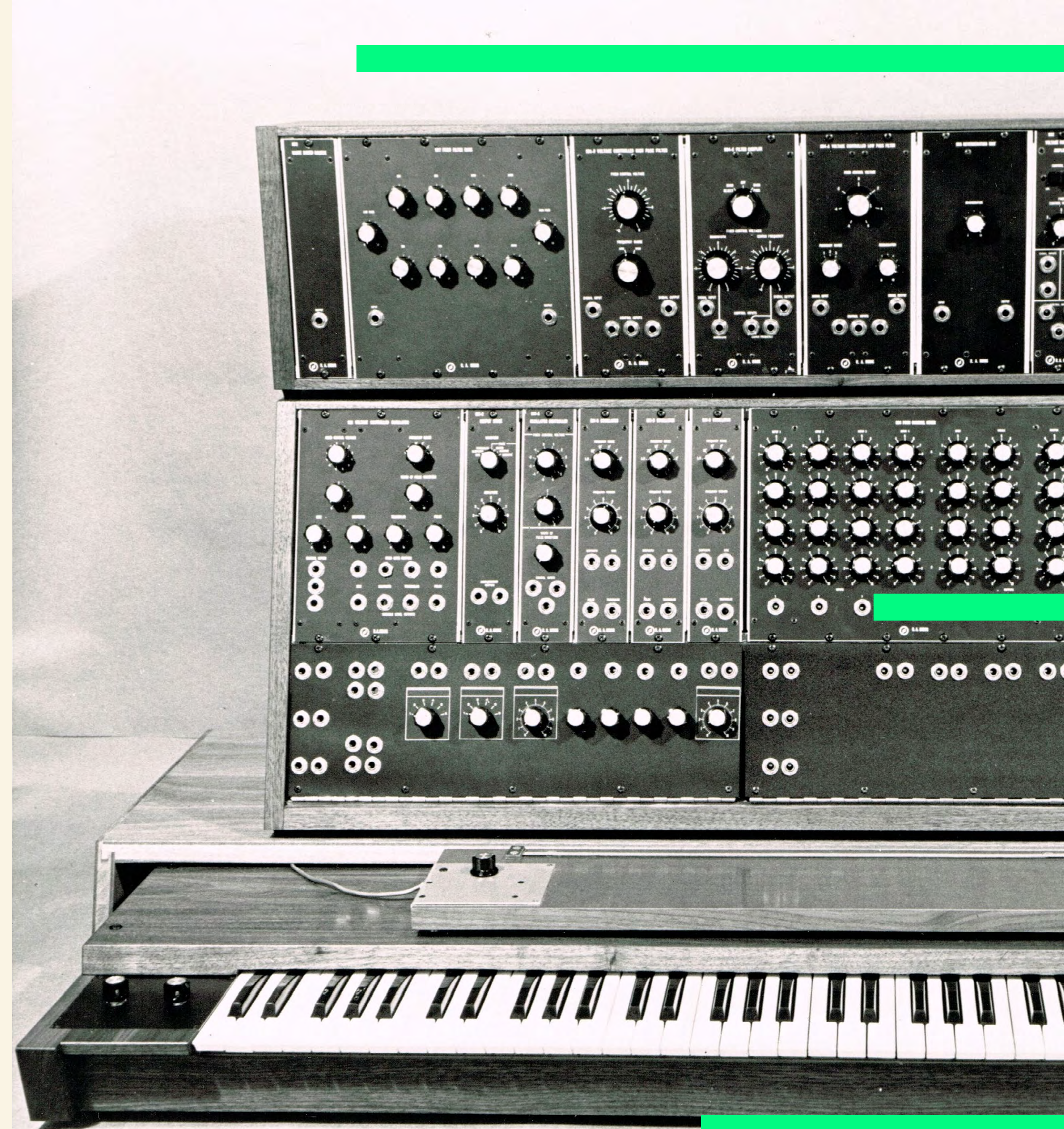
A traditional musical instrument makes sound by vibrating an object, such as a string or a drumhead. An electronic instrument makes sound by directly converting electrical signals to waves that travel from a speaker.

Read some [background](#) about sound waves and how electronic instruments make them. Then read how inventors began creating electronic instruments in the 1890s in Parts [1](#), [2](#), and [3](#) of the Timeline of Synthesis. If you would like further information, you can learn more about the earliest electronic instruments and how they worked [here](#) (optional).

**Then come back to answer these questions:**

1. What is the main difference between a traditional or acoustic instrument, such as a violin and an electronic instrument, such as a synthesizer?
2. Name two ways that a synthesizer modifies a simple sound wave to change how it sounds.
3. How were early synthesizers different from later synthesizers?

To learn more about modular synthesizers, click [here](#).



# Inventors and Pioneers

Building on the pioneering work at radio labs such as GRM (Paris), the Electronic Music Studio at Westdeutscher Rundfunk (WDR) in Cologne, BBC Radiophonic Workshop (London) and industrial research institutes such as Bell Labs (Murray Hill), a handful of inventors began building synthesizers that were powerful enough to create a world of new sounds, but simple enough for musicians to learn to use.

Bob Moog's [series of synthesizers](#) quickly gained popularity with studio musicians. Early experimental musicians such as [Suzanne Ciani](#) mastered the first large, complex Buchla synthesizers. Read about how classic rock and pop artists used his tools [here](#) and [here](#).

Another early pioneer was Alan R. Pearlman, whose ARP 2500 and ARP 2600 powered some of the most inventive sounds in 1970s pop and rock. [This overview](#) of the ARP 2500 gives a walkthrough of how synthesizers work, while [this story](#) shows how Pearlman's thoughtful designs made his instruments easy and popular for musicians.

## Then come back to answer these questions:

1. Name two artists who used synthesizers to create new sounds in popular music.
2. How did inventors simplify their early synthesizers to make them smaller and easier to use?
3. How did adding synthesizers change the sound of traditional rock or pop music of the time?

To learn about a drum machine that became a founding sound of hip-hop, click [here](#).

Alan R. Pearlman using the ARP 2500,  
1972 © Alan R. Pearlman Foundation



# Electric Streets: Cities, Clubs, and Scenes


By the 1970s, electronic instruments were appearing in many genres of music. That changed with the introduction of disco in the 1970s, which added a synthesizer's endless beat to the funky sounds of soul and R&B, allowing club-goers to dance all night. After a backlash in the late 1970s against disco and its Black, Latin and LGBTQ audiences and makers in the USA, disco became more underground.

DJs such as Larry Levan (NY), Frankie Knuckles and Ron Hardy (Chicago) and Ken Collier (Detroit) picked up where disco left off and started their own club nights. In the summer of 1988, this new kind of music appeared in clubs, abandoned warehouses and fields across the UK which became known as Acid House. In 1990s Berlin, a thriving club scene sprung up in the vacant spaces left by the fall of the Berlin Wall, especially the legendary Tresor. Many of these scenes, clubs and parties welcomed marginalized groups.

**After reading, come back to answer these questions:**

1. What were the characteristics of the cities that became home to electronic music scenes?
2. What were electronic music clubs like?
3. How did being “underground,” or not popular, affect electronic music's development?

To learn about the rave scene in the UK and elsewhere, click [here](#).



Frankie Knuckles, considered the father  
of House music © Groove Archive, Groove Magazine, Berlin

# Early Genres

Today, there are many subgenres of electronic music. Many of today's genres of electronic dance music and electronic pop have their roots in the dance sounds of the 1980s and 1990s. Even in these early days, electronic music quickly spread and diversified into dozens of styles.

These links provide overviews of the electronic genres of [Krautrock](#), [House music](#), [Detroit techno](#) and [Dubstep](#).

You can also learn more about other genres that use electronic sounds, such as [synth pop](#), [funk and R&B](#) and [jazz-rock fusion](#).

**Explore as many links as you wish, then come back to answer these questions:**

1. Describe the characteristics of one genre of electronic music.
2. Choose two genres of electronic or electronically influenced music. How are they alike? How are they different?
3. How have the electronic music genres of the 1980s and 1990s influenced music today?



Larry Levan recorded live at the Paradise Garage, 1987 © Keith Haring Foundation, Courtesy of Nakamura Keith Haring Collection



# Quiz

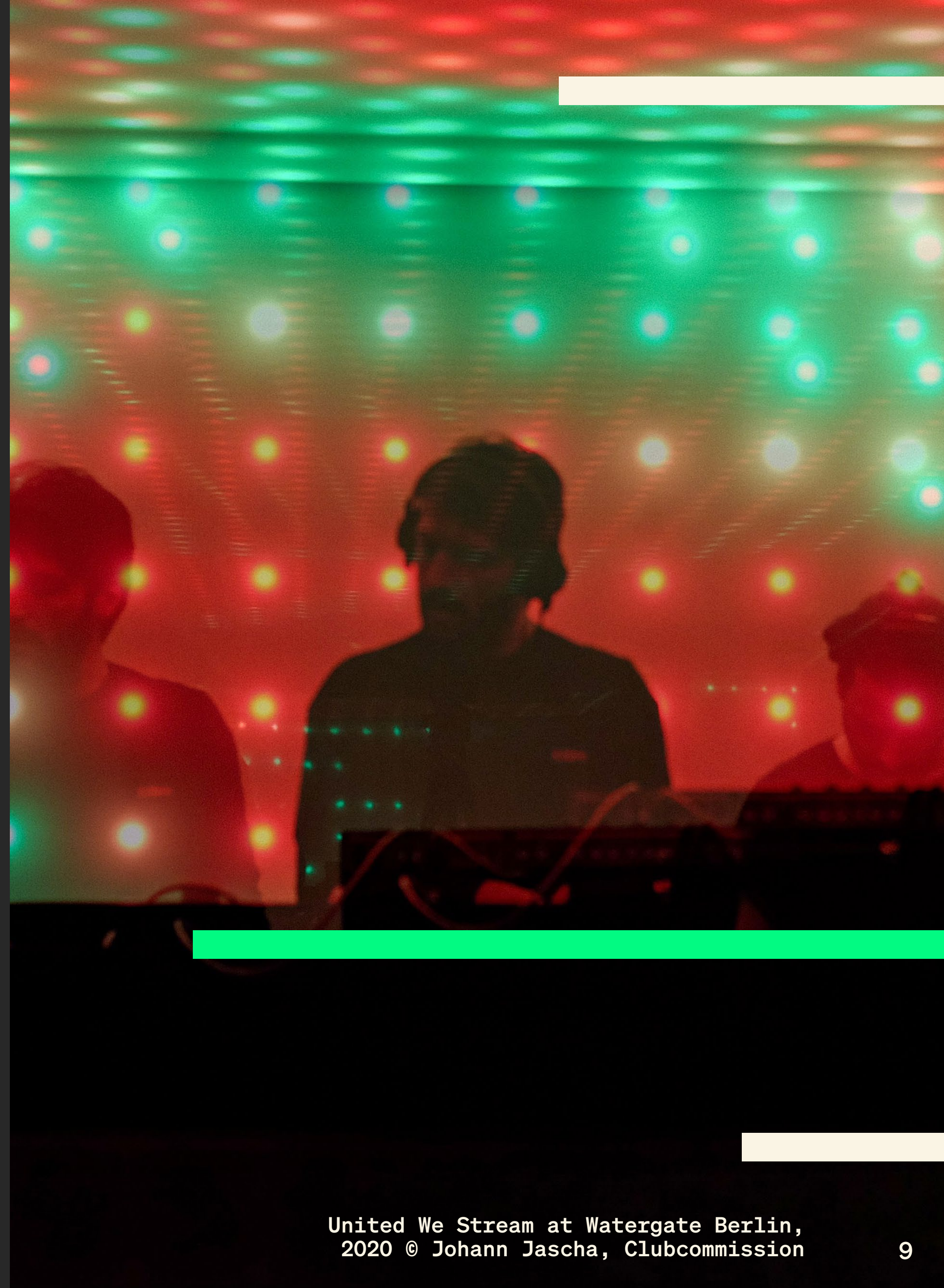
Read the questions and write your answer in your notebook or on a piece of paper.

1. How does an electronic instrument produce a sound that you can hear?
2. What are some of the main parts or elements that make up a synthesizer?
3. What made the MiniMoog and the ARP 2600 more appealing to musicians?
4. What kinds of sounds did 1960s and 1970s popular musicians create with electronic instruments?
5. Name two early musicians or DJs of underground electronic dance music.
6. What type of social scenes accompanied the spread of electronic music and why?
7. Where was Krautrock from and what are its characteristics?
8. What genres of electronic music are most popular today?

## Explore Further

You have learned a few of the basics about electronic music, but there is much more to discover. To learn more about the full history of electronic music and the social scenes it inspired, click [here](#).

Please note that this link directs you to a web page where some of the content has mature themes that may not be appropriate for younger students.



## It's Your Turn!

In this lesson, you learned about the history of electronic music. Here are some ideas for projects that you can do at home or in the classroom.

1. Find an online tool or experiment that allows you to produce electronic sounds, including beats and notes, such as [AR Synth](#). Create your own simple electronic song or loop (repeated sounds).
2. Review some of the [flyers](#), or small posters, that advertised clubs
3. and raves in the early dance-music scenes, such as the one shown here. Use physical art materials such as paper, paint, markers or collage (cutouts from magazines) to design your own flyer for a type of music you enjoy.
4. Choose a song you enjoy that uses electronic sounds. Research the instruments and tools the musicians used to create the song.

Listen to the “Electronic Pioneers” [playlist](#) on YouTube Music.



# Answers

## What Is Electronic Music?

1. An acoustic instrument vibrates a physical object, such as a string, while an electronic instrument uses electric current to vibrate a speaker.
2. A synthesizer can filter a sound to take away parts of the sound wave, it can add reverb (echo), it can add additional tones or overtones and it can change the pitch (frequency) and volume (amplitude).
3. Early synthesizers were very large and they were controlled mechanically using cables. Later synthesizers included more hard-wired choices and were smaller.

## Inventors and Pioneers

1. Artists who used synthesizers included Herbie Hancock, Neu!, The Who, Stevie Wonder, Kraftwerk, Yellow Magic Orchestra, and many others.
2. Synthesizers got smaller by hard-wiring in many pre-set sounds. They also included piano-like keyboards and simplified user interfaces.
3. Traditional rock and pop music often added longer sections with unusual sounds that were less melodic.

## Electric Streets: Cities, Clubs, and Scenes

1. Many cities with electronic music scenes had experienced economic or social difficulties, which left lots of empty spaces and marginalized people who needed a place to socialize.
2. Electronic music clubs were often dark and hidden in industrial areas.
3. Underground music attracted marginalized groups and allowed for more unusual sounds than popular music, whereas clubs were a second home for a huge cross-section of society.

## Early Genres

1. Answers will vary. Most early electronic music included repetitive, long-lasting beats modified with sampled sounds on top.
2. Answers will vary.
3. Early genres of electronic music created dance music with heavy bass, repeated loops and samples, which influence hip-hop, pop, R&B and other music today.

## Quiz

1. Electronic instruments use a changing electric current to vibrate the cone of a speaker.
2. Synthesizer elements include oscillators, which make a sound wave, filters, amplifiers, and additional features like noise generators.
3. The Minimoog and ARP 2600 were smaller, simpler to use and portable.
4. Musicians created very artificial sounds that were “spacey” or strange.
5. Early electronic music DJs and musicians include Kraftwerk, Brian Eno, Frankie Knuckles and the Belleville Three (Juan Atkins, Kevin Saunderson and Derrick May).
6. Early electronic music scenes were often populated by Black, Latin and LGBTQ audiences. Most people were young.
7. Krautrock was developed in West Germany and used both electronic and rock instruments to make long, artificial-sounding and artistic music.
8. Genres of electronic music today include House, Techno, Gabber, Electropop, Dubstep, Grime, Drum & Bass, and many others.