



# Beveren in schools in Norway

The Bebras Challenge was started in Lithuania and is the Lithuanian word for beaver. The challenge is named after the hard-working, intelligent, and lively beaver. *Den energiske Beveren*

[www.bebras.org](http://www.bebras.org)

[www.bebras.no](http://www.bebras.no)

“Everyday life is increasingly regulated by **complex technologies** that most people **neither understand** nor believe they can do much to **influence.**”

Albert Bandura, 2001



**Do you ever feel like technology has taken over the world and you have no understanding of it and no control over it?**

**Computational thinking** involves problem solving skills and Informatics concepts such as breaking down complex tasks into simpler components, algorithm design, pattern recognition, generalisation and abstraction.

▼ Algorithmic thinking



[www.bebras.no](http://www.bebras.no)

▼ Abstraction



[www.bebras.org](http://www.bebras.org)

▼ Decomposition



[www.csunplugged.org](http://www.csunplugged.org)

▼ Generalising and patterns



▼ Evaluation



▼ Logic



- **Bebras is an International Challenge on Informatics and Computational Thinking for school students of all ages.** The challenge is performed at schools. Teachers may integrate the questions into their teaching activities during the year.
- **Bebras is used in almost 60 countries, including Sweden, Denmark, Finland.** It has won the [Informatics Europe 2015 Best Practices in Education Award](#), and many other awards.
- Students score higher in mathematics after using Bebras, as well as in coding and computational thinking.
- **Computational Thinking questions will be on the next international PISA assessment.** PISA is a worldwide assessment of 15-year-old students in reading, mathematics and science.

The Bebras challenge is organized annually by each participating country locally.



## Bebras in Norway.



**Each teacher** can choose problems for her/his class from the problem pool. Students can participate in the challenge individually, or in teams. This is up to each individual teacher. Most students participate online, but it is possible to participate even if there are no computers available.

**No prior knowledge** is expected or needed. There are different task sets for different age students. Students enjoy finding out what they know.

**Teachers receive answers** to each question, an explanation of how the answer could be obtained plus a section on how the tasks are related to Computational Thinking.

The Bebras challenge is organized annually by each participating country locally.



## Bebras in Norway.



**Dates:** The second week of November is declared as World-Wide BEBRAS week for solving tasks. Some countries extended it to two weeks. Many countries run all-year-round *Bebras* activities

**NORWAY: Register your school to participate. Become a Coordinator.**

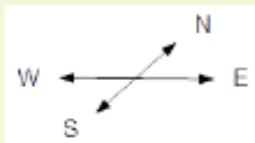
Beaver Bob has set the breakfast-table as shown in the picture.



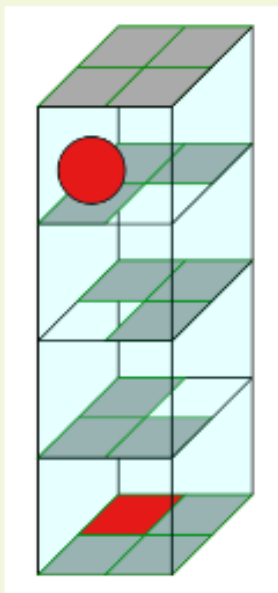
**Question:**

In which order has he placed the objects on the table?

- A. table cloth, napkin, cup and saucer, knife, plate
- B. table cloth, napkin, cup and saucer, plate, knife
- C. napkin, knife, table cloth, cup and saucer, plate
- D. table cloth, cup and saucer, napkin, plate, knife



If the BeaverBall moves to a white square, it drops down one level. The BeaverBall ignores commands that cause it to move outside the borders.



Look at the position of the BeaverBall in the picture above. Which of the following lists of directions will cause the BeaverBall to reach the GOAL?

- A: E, W, N, W, W
- B: E, W, N, E, S, W
- C: E, W, E, N, S, W
- D: E, N, W, S, N, E, W



## Solution:

The correct answer is D.

A – The BeaverBall does not reach the bottom level (it cannot move in direction W and so ignores the final two W commands).



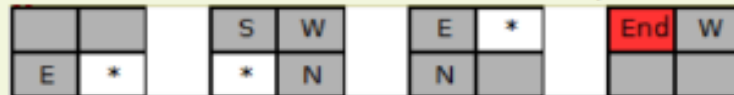
B – The BeaverBall reaches the bottom level but stops on a square that is not the GOAL square.



C – The BeaverBall reaches the bottom level but stops on a square that is not the GOAL square.



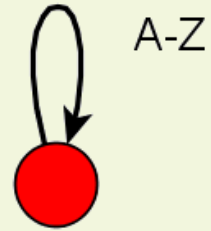
D – The BeaverBall reaches the GOAL. So, this is the correct answer.



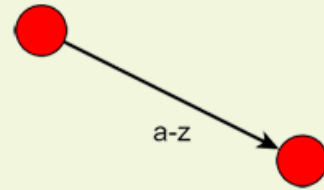
## It's Informatics

computer program is a sequence of instructions from a set of possibilities. This task requires one to write a computer program in a very simple programming language that consists of only four possible commands N, S, E, W. This introduces one important element of many computer programming languages, sequential composition, which means following commands one after another in order.

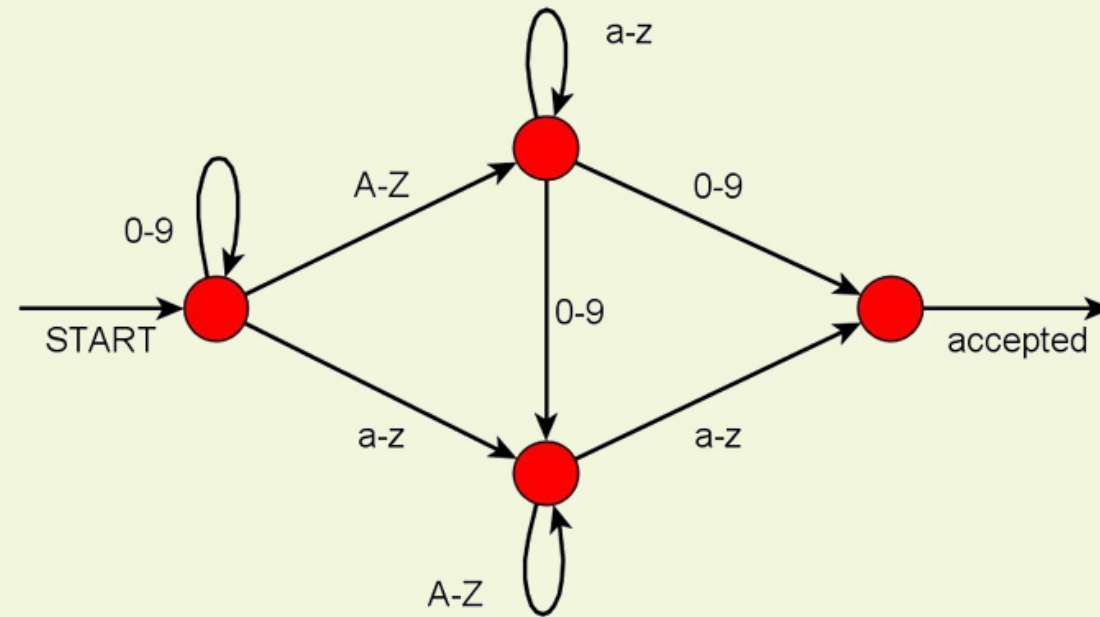
a-z means any lower-case letter from the alphabet.  
There are certain rules for the password to be accepted.



In a loop any quantity of letters or digits can be used several times. In this loop the beavers are allowed to use zero, one or more capital letters.



An edge means that the beavers have to use exactly one letter or digit. This edge demands one lower-case letter.



Which of the following passwords won't be accepted?

**Answer:**

- A) 123aNNa
- B) Peter3ABCd
- C) 2010Beaver4EVER
- D) bENNOZzz

# Throw the Dice

Kits:  
Castors:  
Juniors: C

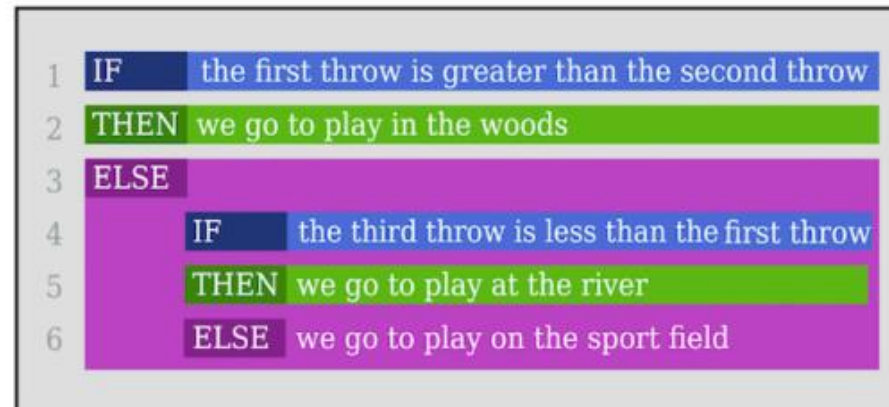
Intermediates: C  
Seniors: B  
Elite:



After school the young beavers often play together.

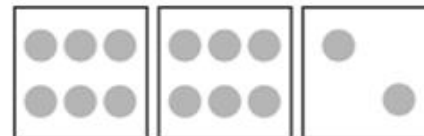
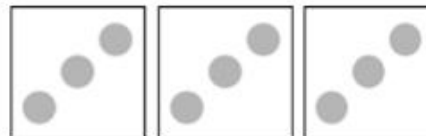
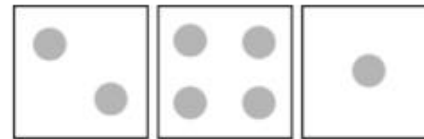
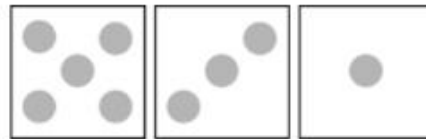
To avoid quarrels about where to play, they throw a normal six sided die.

The decision is found according to this rule:



## Question:

Which sequence of throws will send the young beavers to the sports field?



**Computational thinking is not about programming. Computational thinking is about people. It is solving problems that answer people's needs.**

We have decisions to make about technology. So will our children.

**Before we “code”. It's all driven by looking after humans.**

Human Need: Accurate payment  
Computer Science: Check sums  
(Barcodes)



Human Need: Communication  
Computer Science: Should we  
create URLs that are more  
inclusive?

<http://www.> Æ, Ø, and Å

Human Need: Transport  
Computer Science: Scheduling



“The greatest tragedy I know of is that so many young people **never discover what they really want to do.**”

Edna Kerr  
(quoted by Dale Carnegie)

We might love coding/algorithms/logic/ ... students need to realise it is about people.



## Bebras in Norway

Every school must have a teacher as a Coordinator.  
The Coordinator must register the school.

Become a Coordinator. Register your school today.

Registrer deg nå din skole.

Register your school now at [www.bebras.no](http://www.bebras.no)



Lærer, gjør oss til en Bebras skole.

# BEBRAS PILOT 2018

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## SEPTEMBER

- KOORDINATOR
- OPPGAVESETT

## NOVEMBER - DEL 1

- PILOTEN LIVE!
- SUPPORT
- OPPGAVEHEFTE

## DESEMBER

- TILBAKEMELDINGER

## OKTOBER

- OVERSETTING
- MARKEDSFØRING

## NOVEMBER - DEL 2

- UNIKE ELEVBRUKERE:  
OVER 900
- ANTALL SKOLER: 33
- DIPLOM

# BEBRAS PILOT 2018

ALDERSGRUPPE	LETT	MIDDELS	VANSKELIG	TOTAL ANTALL OPPGAVER	TID (MINUTTER)
2. – 3. trinn	6	2	1	9	60
4. – 5. trinn	6	4	3	13	45
6. – 7. trinn	5	5	5	15	45
Ungdomsskolen	5	5	5	15	45
VGS	5	5	5	15	45



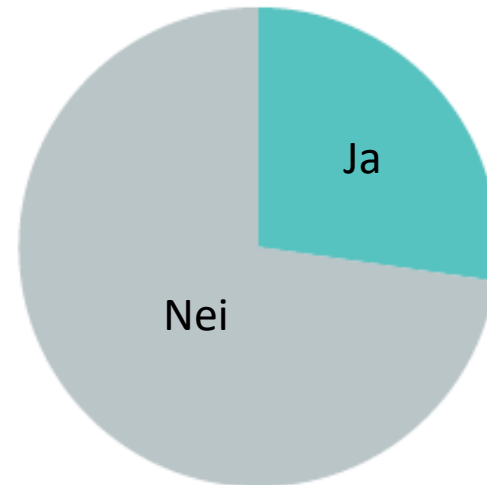
# BEBRAS PILOT 2018 – tilbakemeldinger



Bilde: Colourbox

# BEBRAS PILOT 2018 – tilbakemeldinger

Har du undervist koding og/eller algoritmisk tankegang tidligere?



Total

● Ja

● Nei

● Vet ikke

11

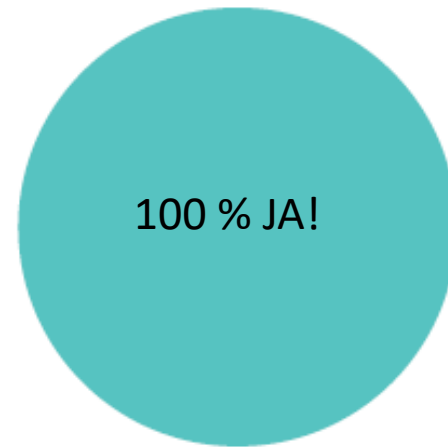
27.3%

72.7%

0.0%

# BEBRAS PILOT 2018 – tilbakemeldinger

Ønsker du å gjennomføre Bebras-utfordringen flere ganger?



Total

11

● Ja

100.0%

● Nei

0.0%

● Usikker

0.0%

# Veien videre – steg 1



Interessert i oppdateringer?

Registrer deg som koordinator på  
<https://utfordring.bebras.no/admin>

# Veien videre – steg 2

Ny utfordring i november 2019

	MAN 28	TIR 29	ONS 30	TOR 31	FRE 1. nov	LØR 2	SØN 3
44							
45	4	5	6	7	8	9	10
46	11	12	13	14	15	16	17
47	18	19	20	21	22	23	24
48	25	26	27	28	29	30	1. des <small>Første søndag i advent</small>

Takk for oss!

