

Circuitos em investigação

Bingo de previsões: observe a montagem, pense no caminho elétrico e justifique sua escolha.

COMO JOGAR

1. Imprima as 40 cartelas (páginas 2 a 41) e entregue uma por aluno.
2. Mostre o significado de pilha, lâmpada, chave aberta e soquete vazio.
3. Embaralhe as 12 cartas de chamada. Leia uma por vez, sem dizer o número.
4. A turma procura a montagem correspondente e marca somente após justificar.
5. Vence quem fizer linha, coluna ou diagonal e explicar uma marcação ao professor.

ACORDOS CIENTÍFICOS

- A pilha representa uma fonte de baixa tensão; os esquemas são modelos, não instruções de montagem.
- Todos os fios e contatos metálicos indicados estão íntegros, exceto quando a carta diz o contrário.
- As duas lâmpadas são iguais. O plástico é seco e isolante; a amostra metálica está limpa.
- Uma lâmpada acende apenas quando seu ramo participa de um caminho condutor fechado.
- Nunca use tomadas ou instalações da rede elétrica nesta atividade.

Fonte pedagógica: PhET / University of Colorado Boulder, Circuit Construction Kit: DC.

GABARITO RÁPIDO

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acesa

02 Chave aberta

apagada

03 Chave fechada

acesa

04 Fio solto

apagada

05 Amostra metálica

acesa

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09 Dois ramos

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11 Chave no ramo L2

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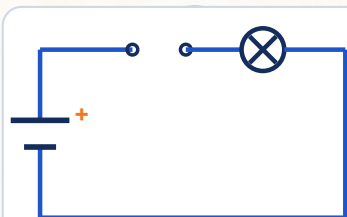
12 Chave antes dos ramos

L1 e L2 apagadas

Circuitos em investigação | cartelas

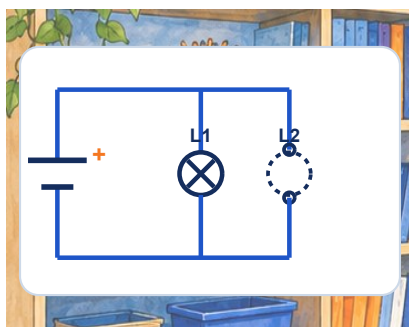
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 01



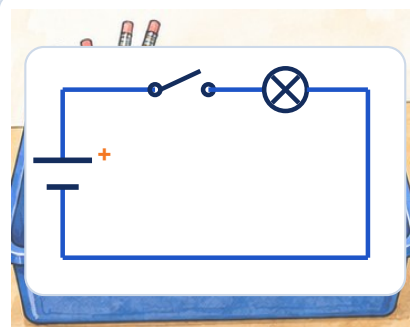
Fio solto

1 lâmpada



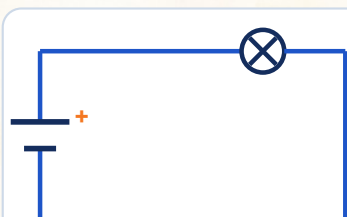
Paralelo sem L2

soquete de L2 vazio



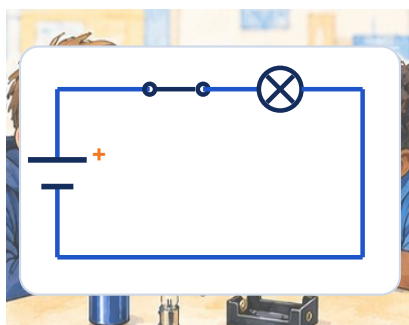
Chave aberta

1 lâmpada



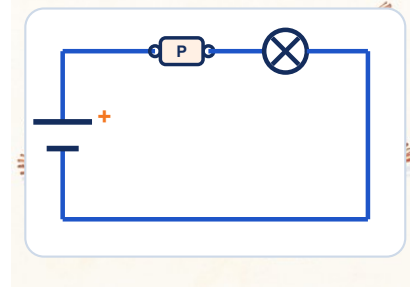
Percurso inteiro

1 lâmpada, sem chave



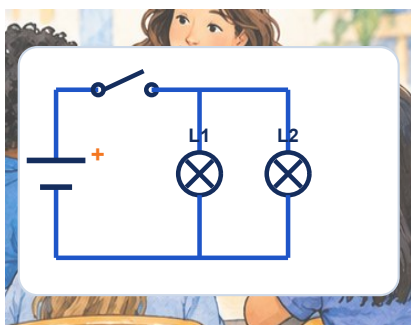
Chave fechada

1 lâmpada



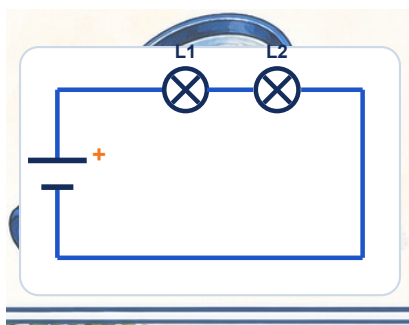
Amostra de plástico

teste no intervalo



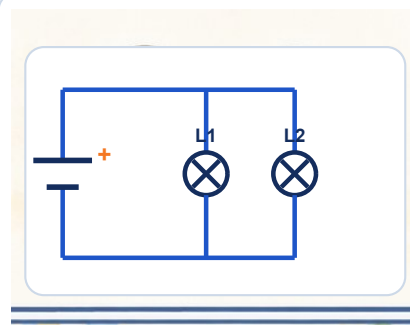
Chave antes dos ramos

chave aberta



Duas em série

L1 e L2 presentes



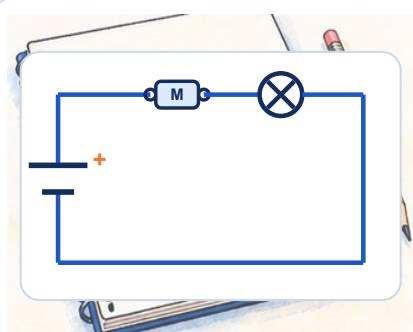
Dois ramos

L1 e L2 presentes

Circuitos em investigação | cartelas

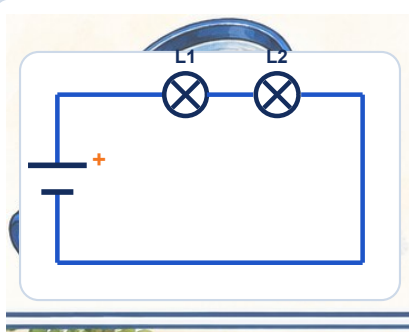
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 02



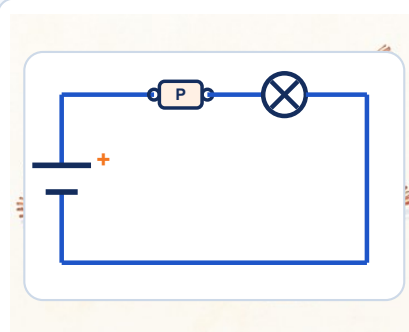
Amostra metálica

teste no intervalo



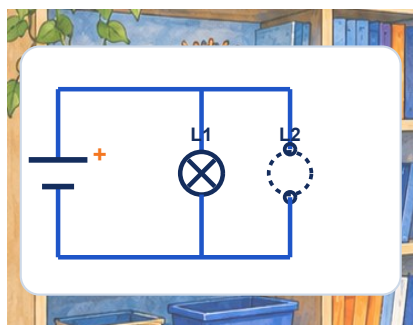
Duas em série

L1 e L2 presentes



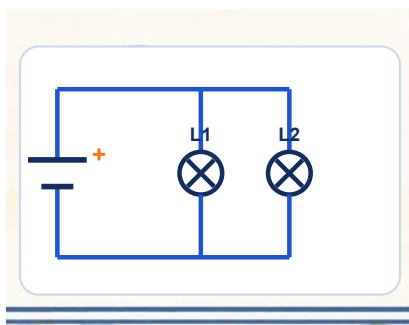
Amostra de plástico

teste no intervalo



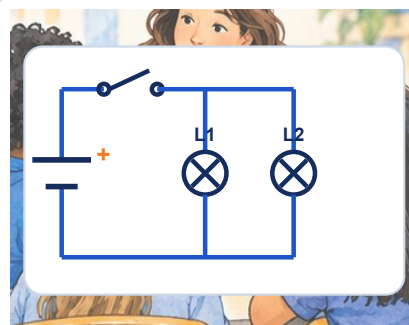
Paralelo sem L2

soquete de L2 vazio



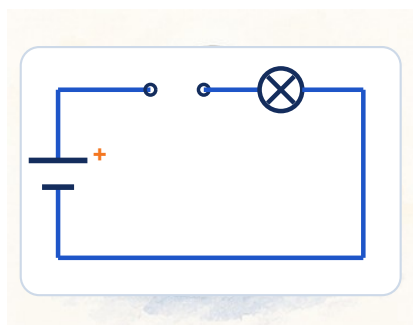
Dois ramos

L1 e L2 presentes



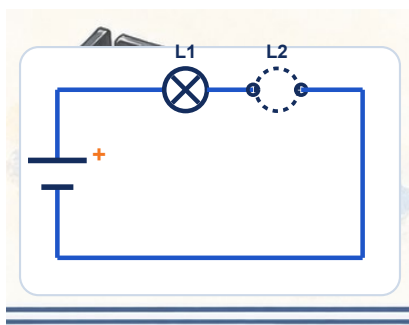
Chave antes dos ramos

chave aberta



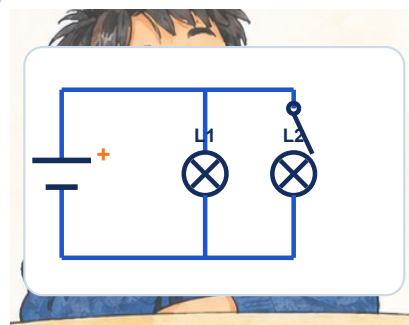
Fio solto

1 lâmpada



Série com L2 retirada

soquete vazio



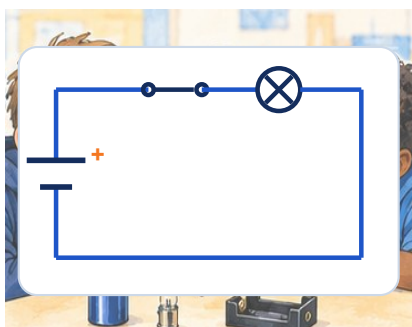
Chave no ramo L2

chave aberta

Circuitos em investigação | cartelas

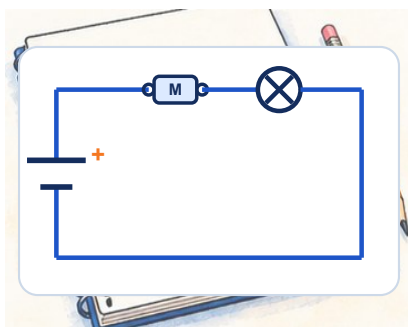
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 03



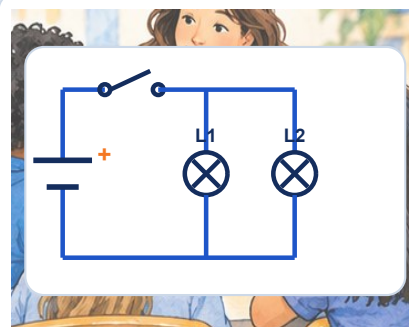
Chave fechada

1 lâmpada



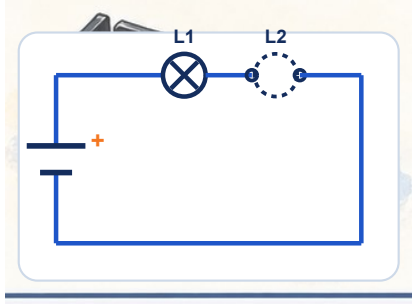
Amostra metálica

teste no intervalo



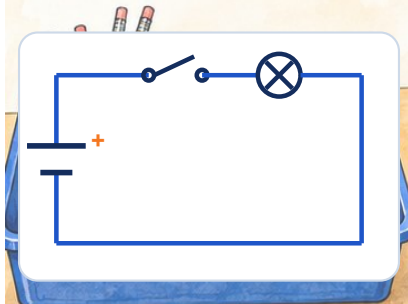
Chave antes dos ramos

chave aberta



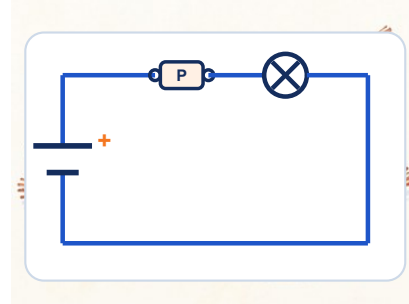
Série com L2 retirada

soquete vazio



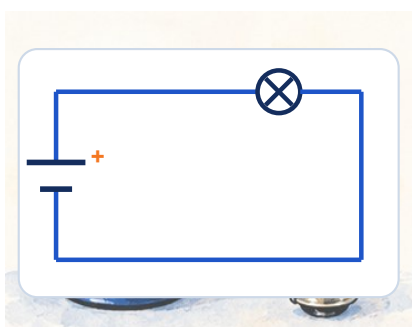
Chave aberta

1 lâmpada



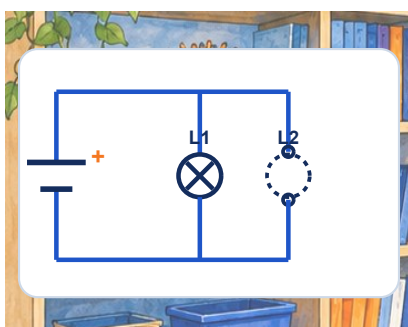
Amostra de plástico

teste no intervalo



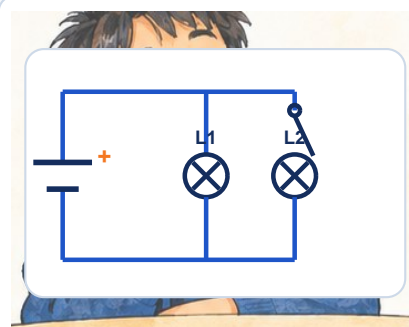
Percurso inteiro

1 lâmpada, sem chave



Paralelo sem L2

soquete de L2 vazio



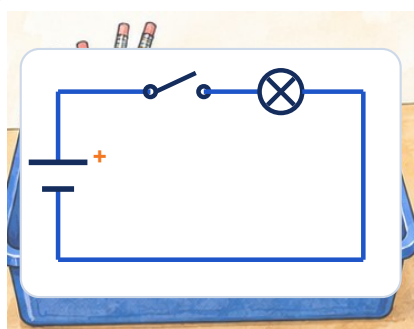
Chave no ramo L2

chave aberta

Circuitos em investigação | cartelas

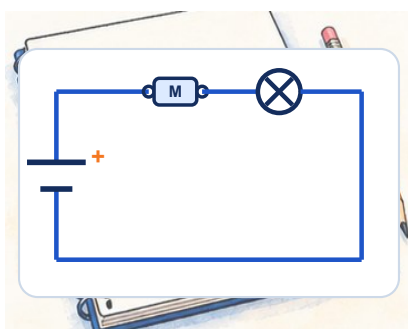
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 04



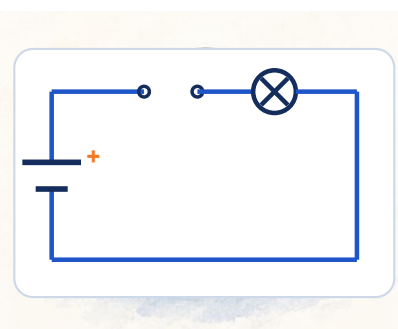
Chave aberta

1 lâmpada



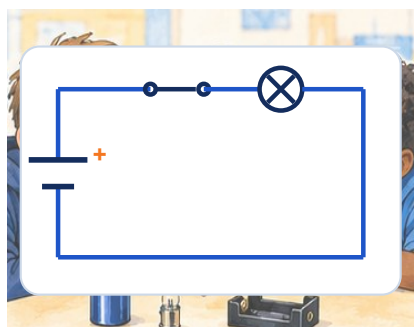
Amostra metálica

teste no intervalo



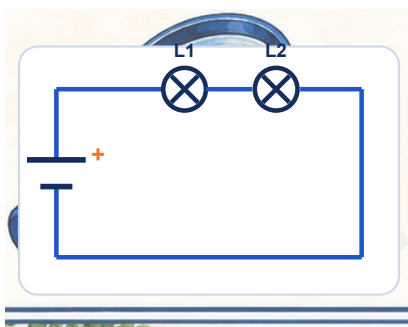
Fio solto

1 lâmpada



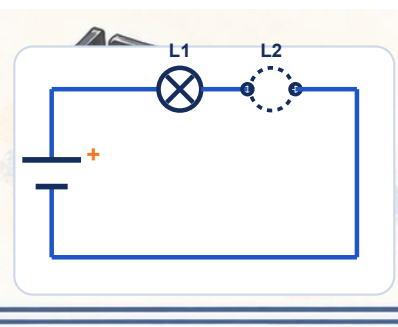
Chave fechada

1 lâmpada



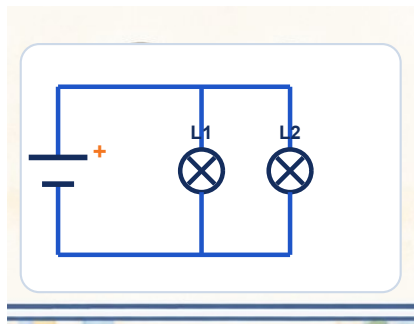
Duas em série

L1 e L2 presentes



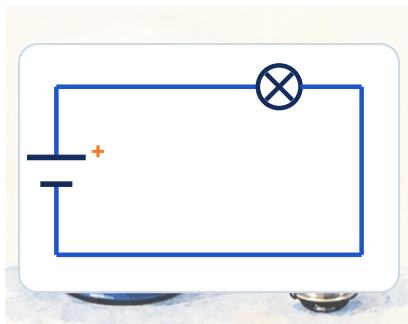
Série com L2 retirada

soquete vazio



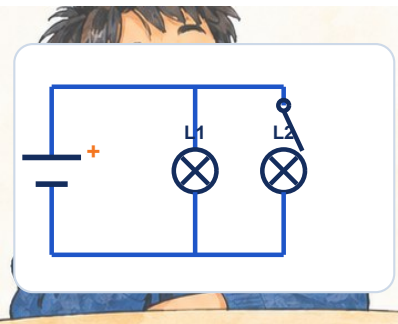
Dois ramos

L1 e L2 presentes



Percurso inteiro

1 lâmpada, sem chave



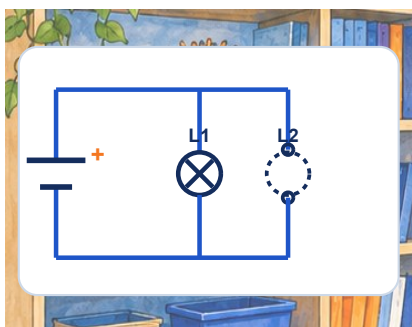
Chave no ramo L2

chave aberta

Circuitos em investigação | cartelas

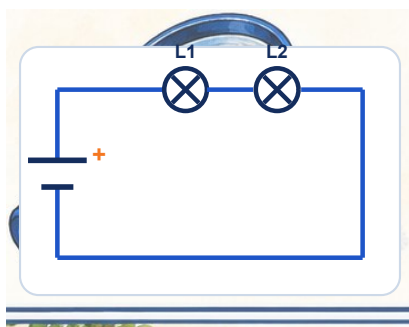
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 05



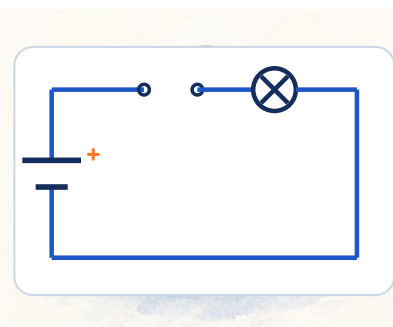
Paralelo sem L2

soquete de L2 vazio



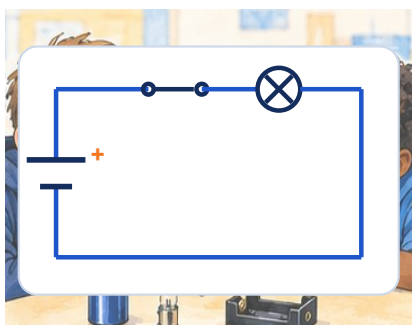
Duas em série

L1 e L2 presentes



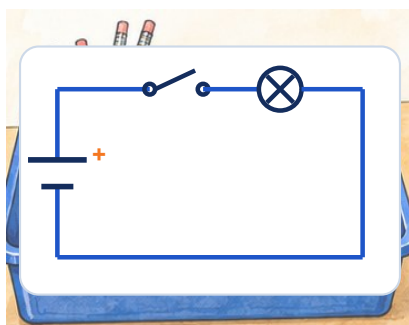
Fio solto

1 lâmpada



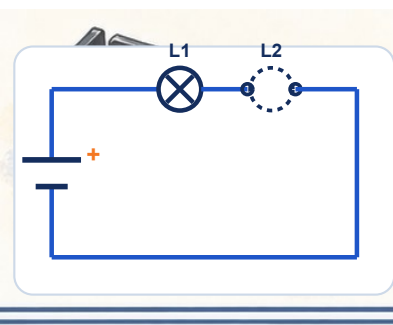
Chave fechada

1 lâmpada



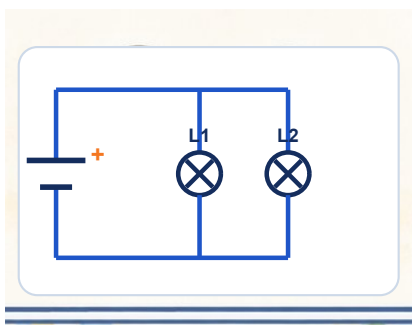
Chave aberta

1 lâmpada



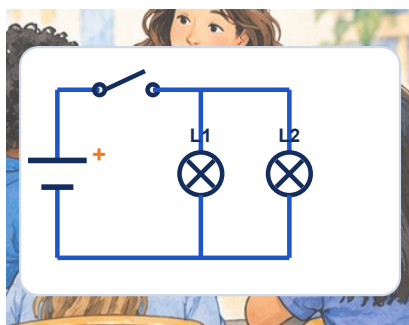
Série com L2 retirada

soquete vazio



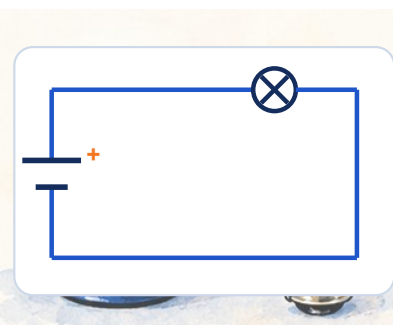
Dois ramos

L1 e L2 presentes



Chave antes dos ramos

chave aberta



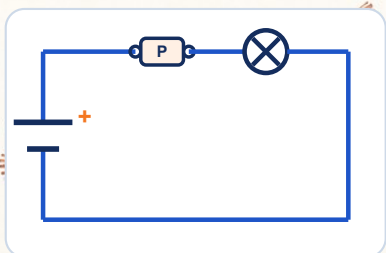
Percurso inteiro

1 lâmpada, sem chave

Circuitos em investigação | cartelas

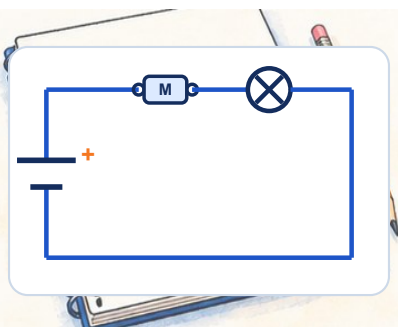
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 06



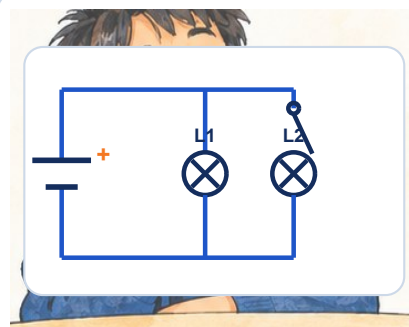
Amostra de plástico

teste no intervalo



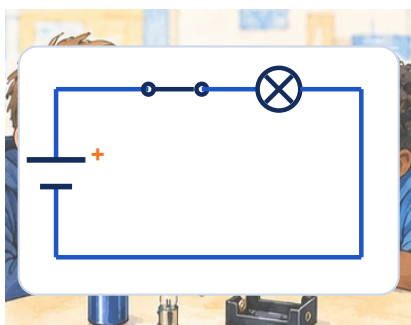
Amostra metálica

teste no intervalo



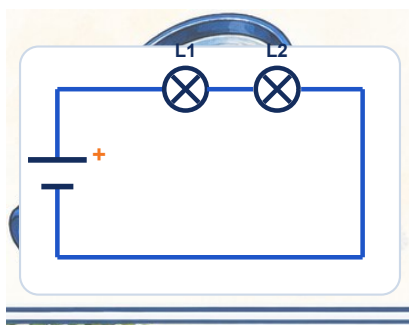
Chave no ramo L2

chave aberta



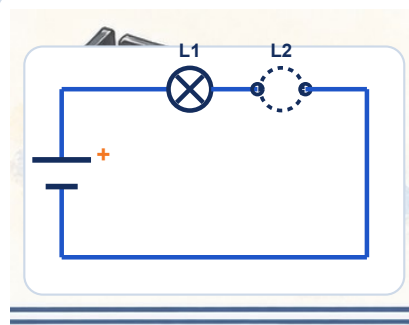
Chave fechada

1 lâmpada



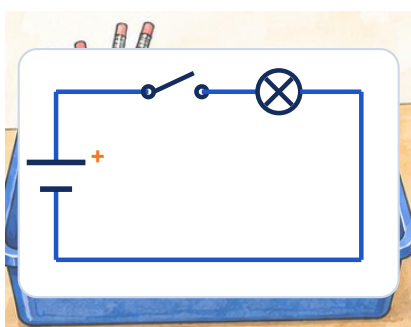
Duas em série

L1 e L2 presentes



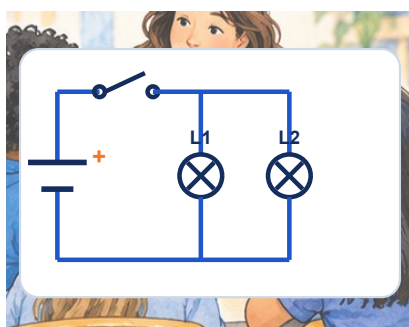
Série com L2 retirada

soquete vazio



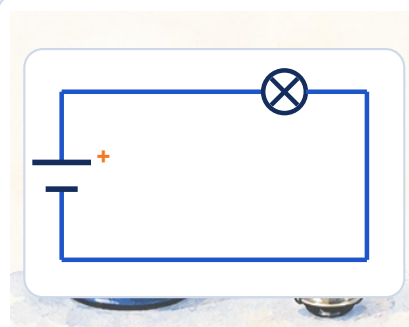
Chave aberta

1 lâmpada



Chave antes dos ramos

chave aberta



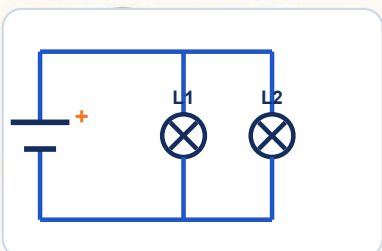
Percurso inteiro

1 lâmpada, sem chave

Circuitos em investigação | cartelas

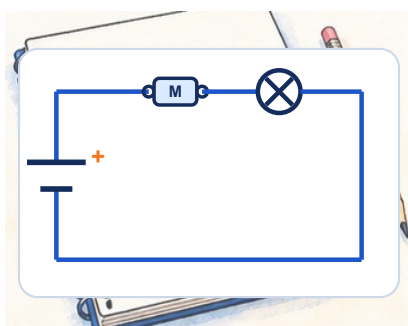
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 07



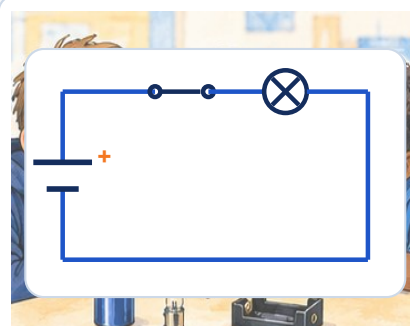
Dois ramos

L1 e L2 presentes



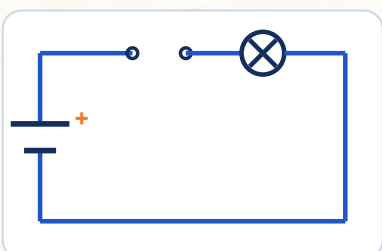
Amostra metálica

teste no intervalo



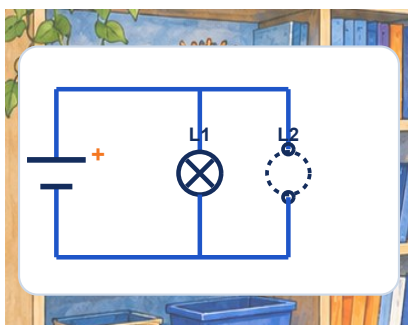
Chave fechada

1 lâmpada



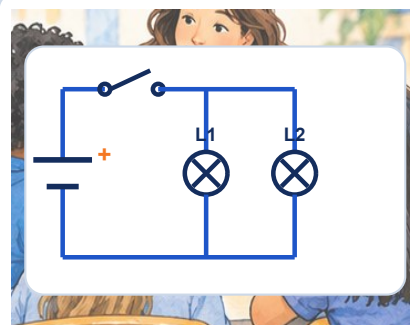
Fio solto

1 lâmpada



Paralelo sem L2

soquete de L2 vazio



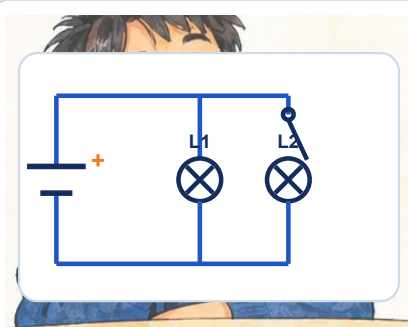
Chave antes dos ramos

chave aberta



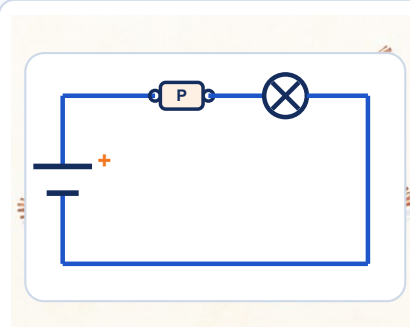
Percurso inteiro

1 lâmpada, sem chave



Chave no ramo L2

chave aberta



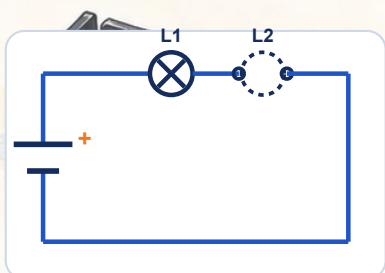
Amostra de plástico

teste no intervalo

Circuitos em investigação | cartelas

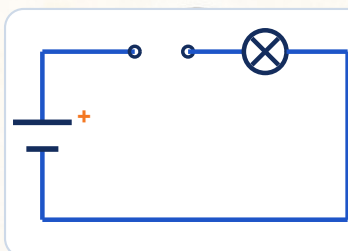
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 08



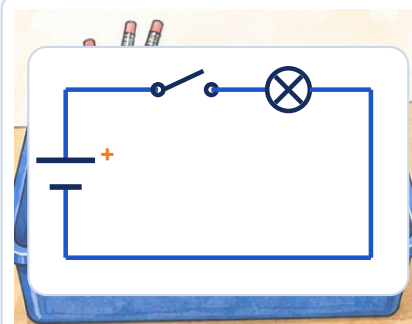
Série com L2 retirada

soquete vazio



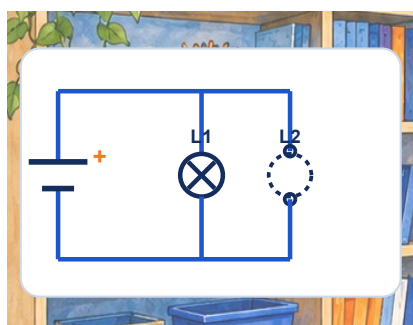
Fio solto

1 lâmpada



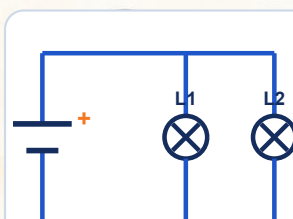
Chave aberta

1 lâmpada



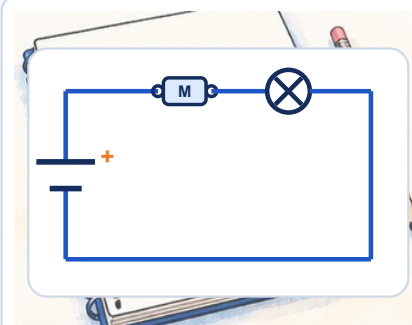
Paralelo sem L2

soquete de L2 vazio



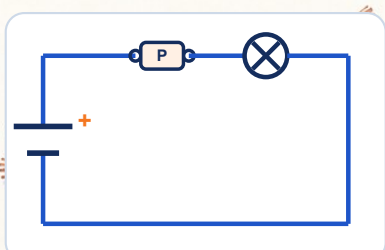
Dois ramos

L1 e L2 presentes



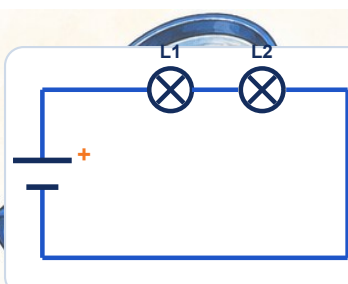
Amostra metálica

teste no intervalo



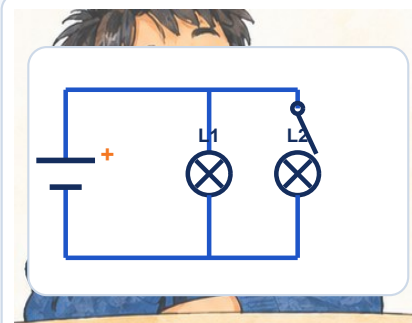
Amostra de plástico

teste no intervalo



Duas em série

L1 e L2 presentes



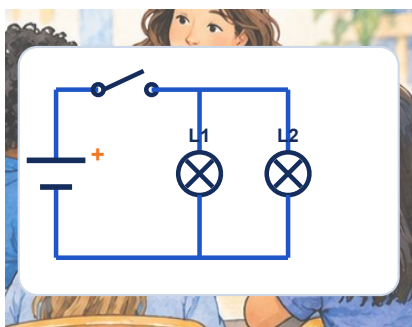
Chave no ramo L2

chave aberta

Circuitos em investigação | cartelas

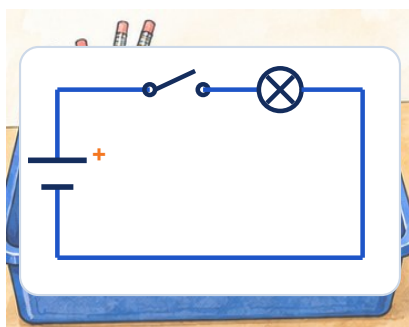
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 09



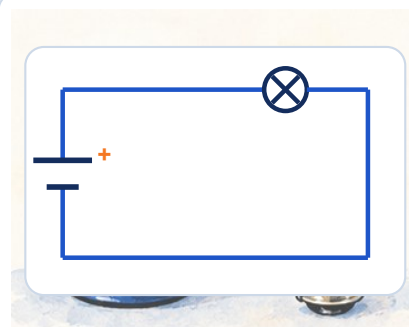
Chave antes dos ramos

chave aberta



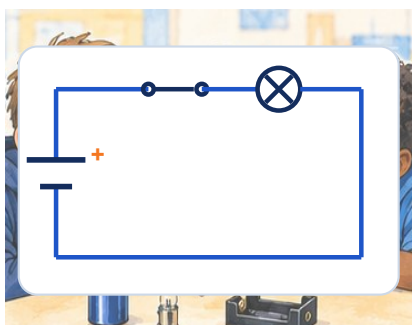
Chave aberta

1 lâmpada



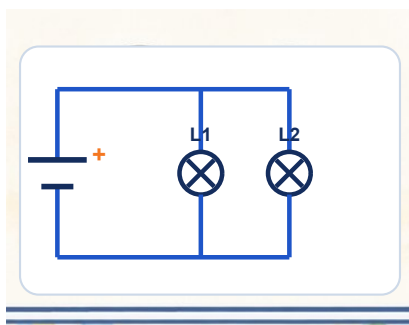
Percurso inteiro

1 lâmpada, sem chave



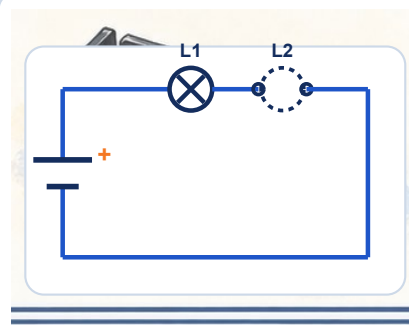
Chave fechada

1 lâmpada



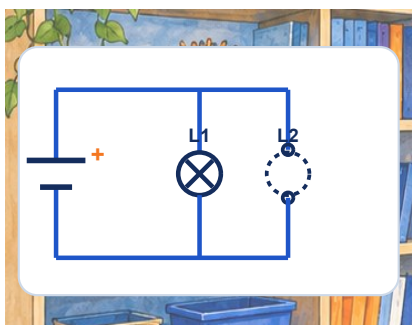
Dois ramos

L1 e L2 presentes



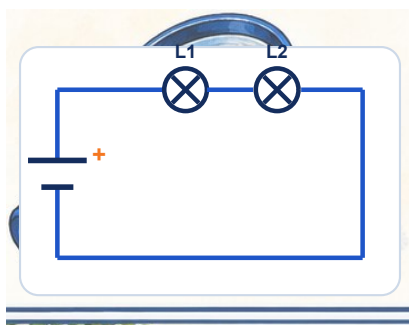
Série com L2 retirada

soquete vazio



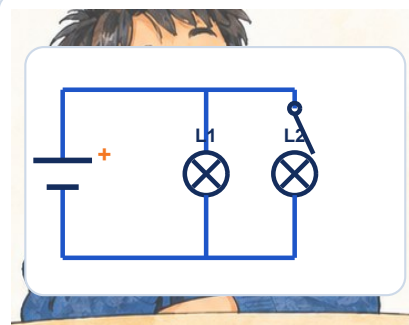
Paralelo sem L2

soquete de L2 vazio



Duas em série

L1 e L2 presentes



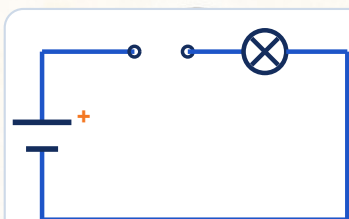
Chave no ramo L2

chave aberta

Circuitos em investigação | cartelas

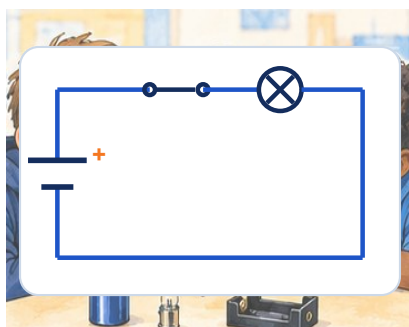
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 10



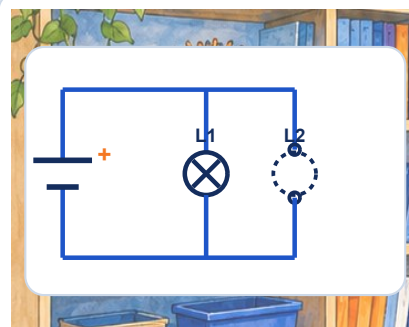
Fio solto

1 lâmpada



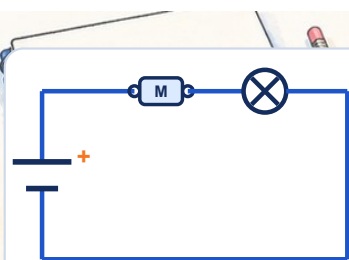
Chave fechada

1 lâmpada



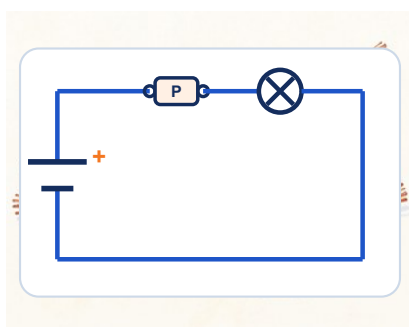
Paralelo sem L2

soquete de L2 vazio



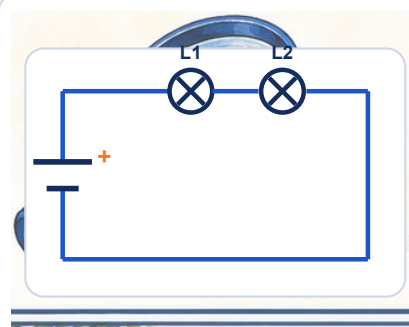
Amostra metálica

teste no intervalo



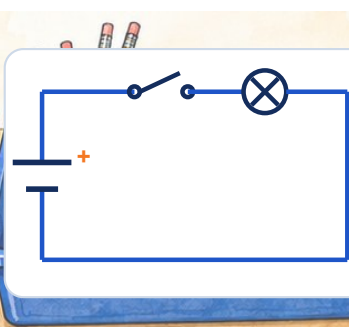
Amostra de plástico

teste no intervalo



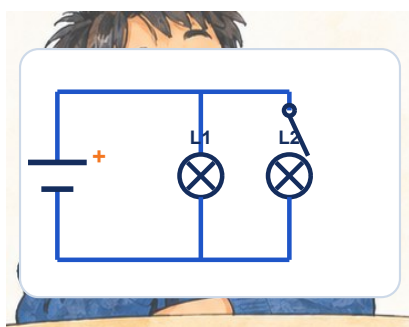
Duas em série

L1 e L2 presentes



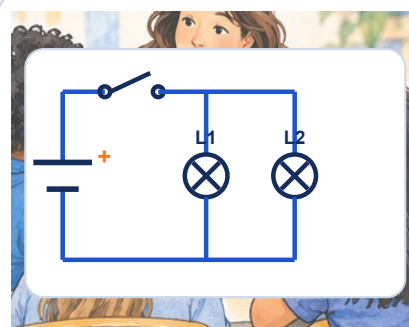
Chave aberta

1 lâmpada



Chave no ramo L2

chave aberta



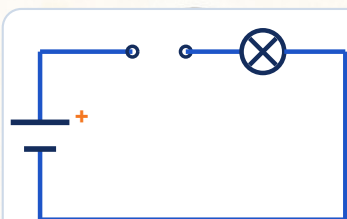
Chave antes dos ramos

chave aberta

Circuitos em investigação | cartelas

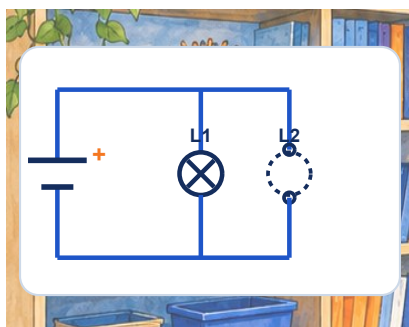
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 11



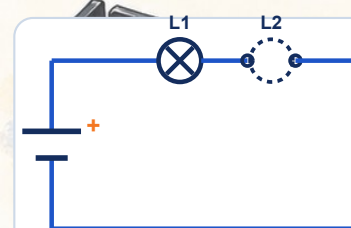
Fio solto

1 lâmpada



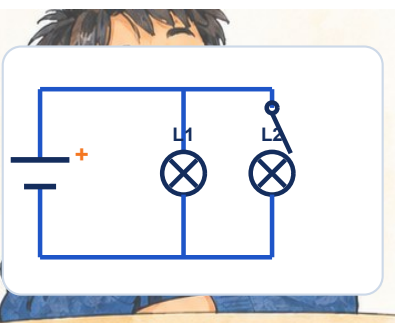
Paralelo sem L2

soquete de L2 vazio



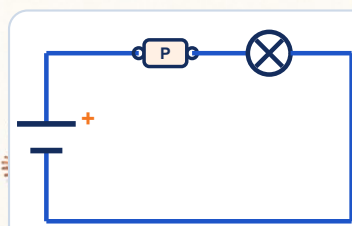
Série com L2 retirada

soquete vazio



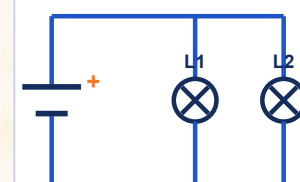
Chave no ramo L2

chave aberta



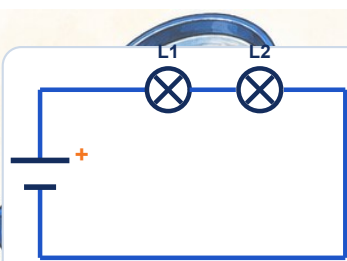
Amostra de plástico

teste no intervalo



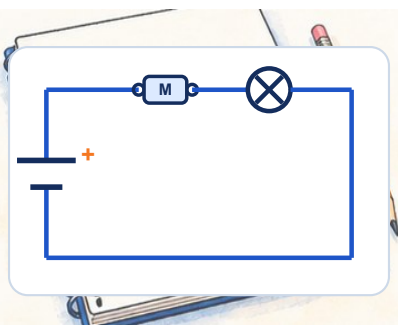
Dois ramos

L1 e L2 presentes



Duas em série

L1 e L2 presentes



Amostra metálica

teste no intervalo



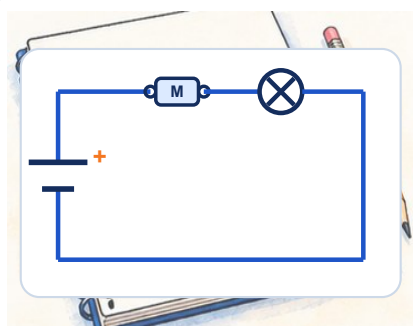
Percurso inteiro

1 lâmpada, sem chave

Circuitos em investigação | cartelas

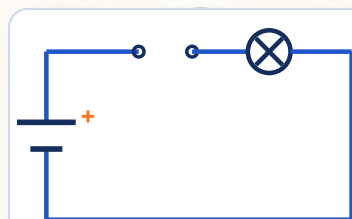
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 12



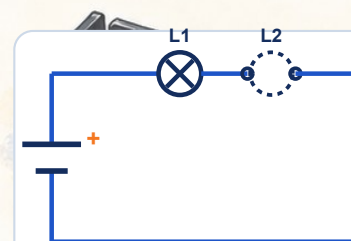
Amostra metálica

teste no intervalo



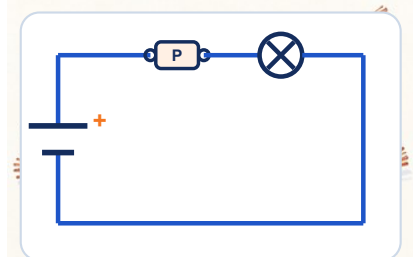
Fio solto

1 lâmpada



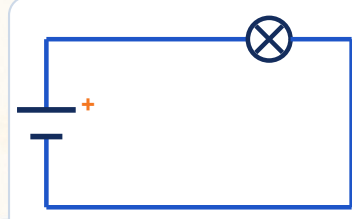
Série com L2 retirada

soquete vazio



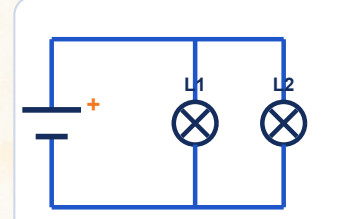
Amostra de plástico

teste no intervalo



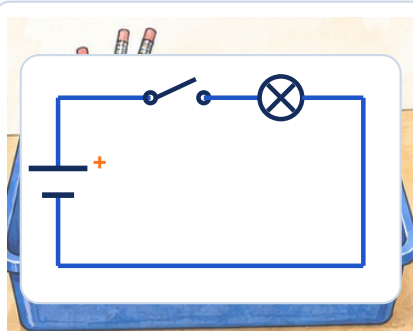
Percurso inteiro

1 lâmpada, sem chave



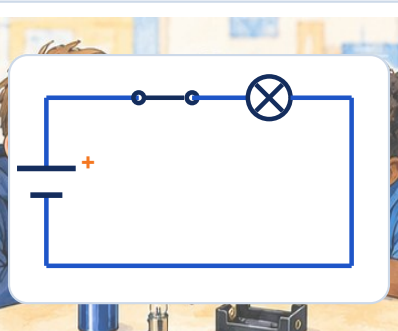
Dois ramos

L1 e L2 presentes



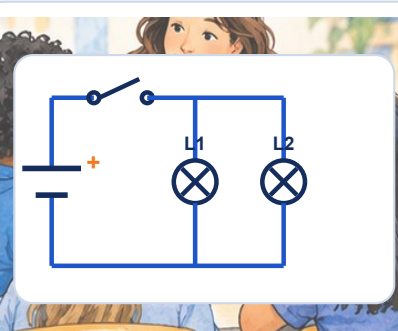
Chave aberta

1 lâmpada



Chave fechada

1 lâmpada



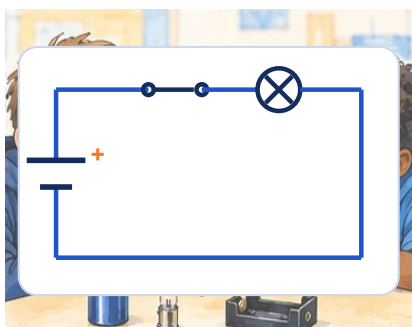
Chave antes dos ramos

chave aberta

Circuitos em investigação | cartelas

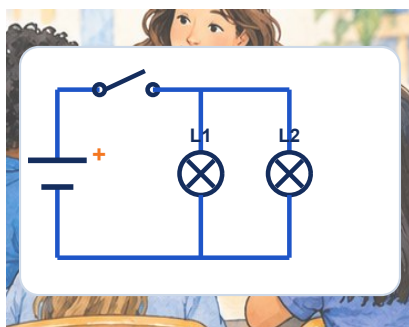
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 13



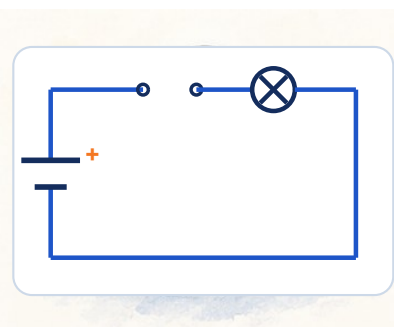
Chave fechada

1 lâmpada



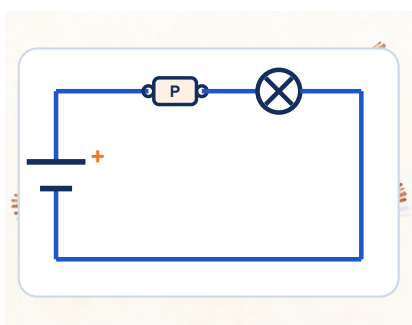
Chave antes dos ramos

chave aberta



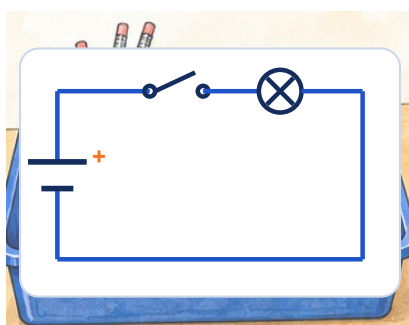
Fio solto

1 lâmpada



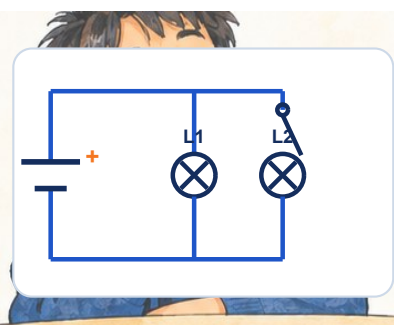
Amostra de plástico

teste no intervalo



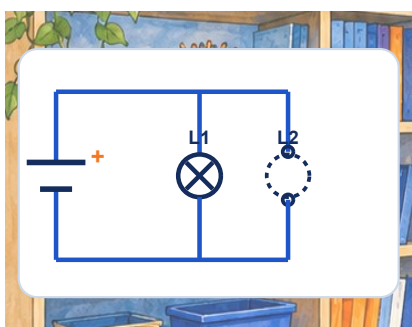
Chave aberta

1 lâmpada



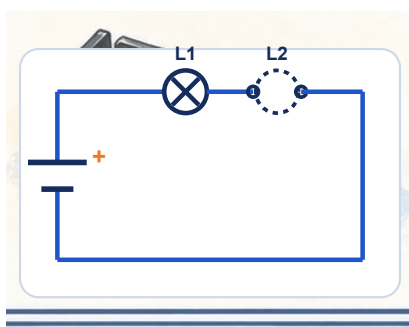
Chave no ramo L2

chave aberta



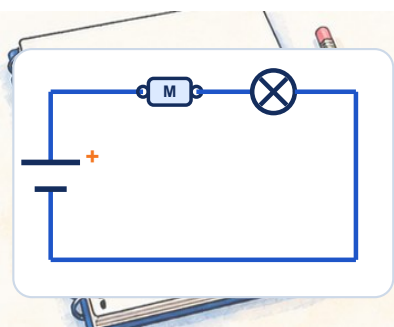
Paralelo sem L2

soquete de L2 vazio



Série com L2 retirada

soquete vazio



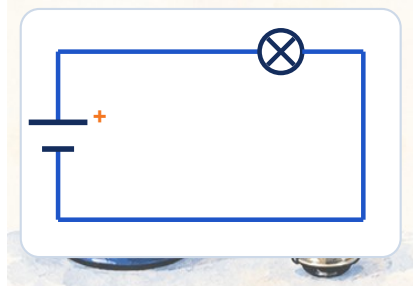
Amostra metálica

teste no intervalo

Circuitos em investigação | cartelas

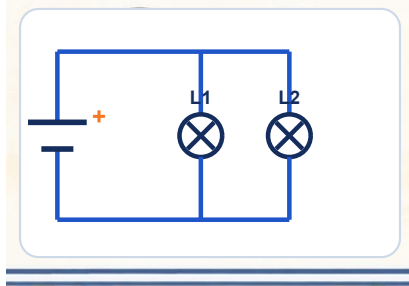
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 14



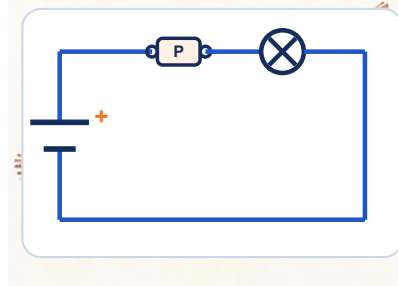
Percurso inteiro

1 lâmpada, sem chave



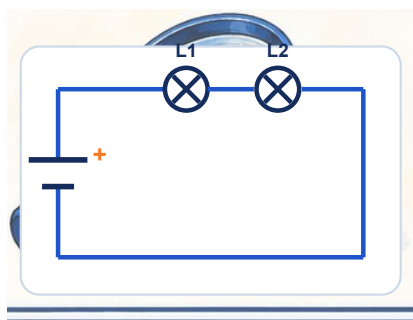
Dois ramos

L1 e L2 presentes



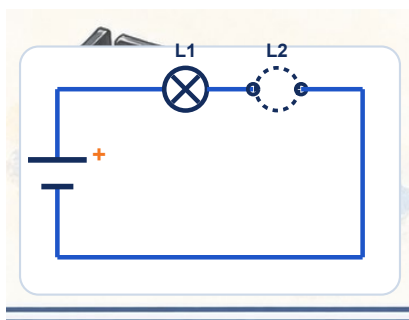
Amostra de plástico

teste no intervalo



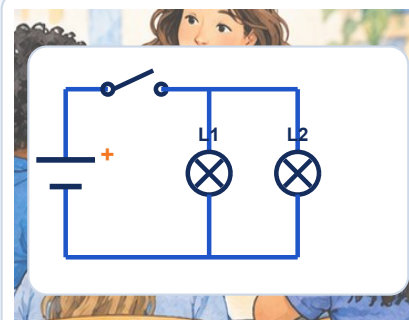
Duas em série

L1 e L2 presentes



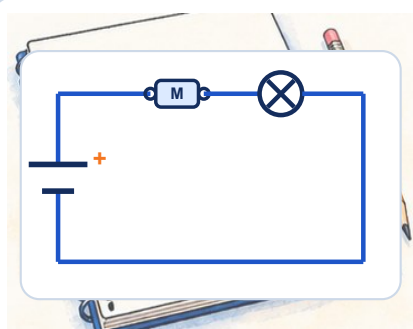
Série com L2 retirada

soquete vazio



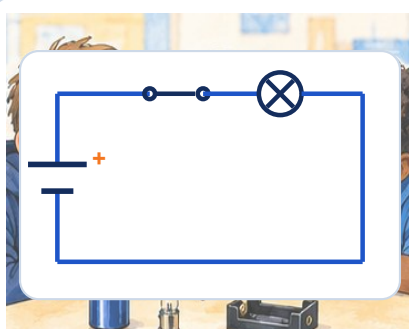
Chave antes dos ramos

chave aberta



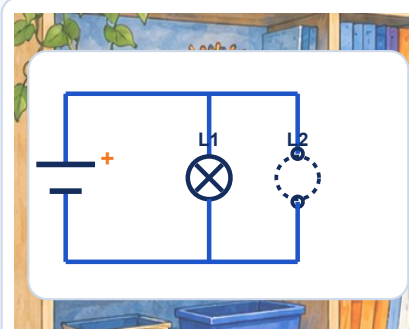
Amostra metálica

teste no intervalo



Chave fechada

1 lâmpada



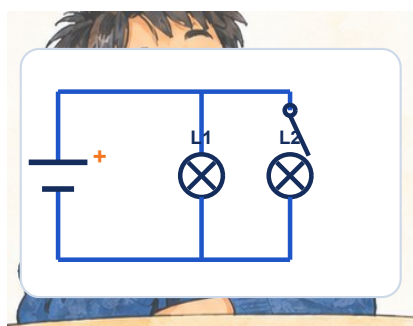
Paralelo sem L2

soquete de L2 vazio

Circuitos em investigação | cartelas

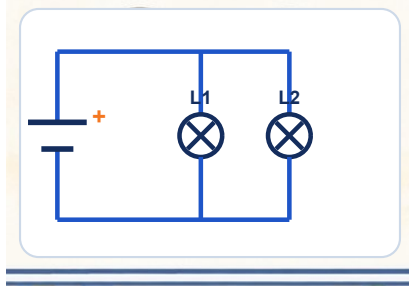
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 15



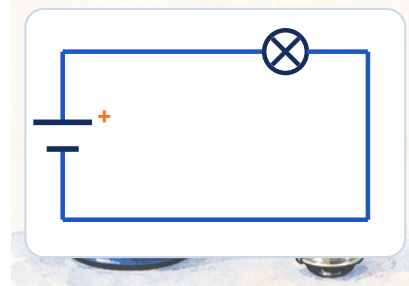
Chave no ramo L2

chave aberta



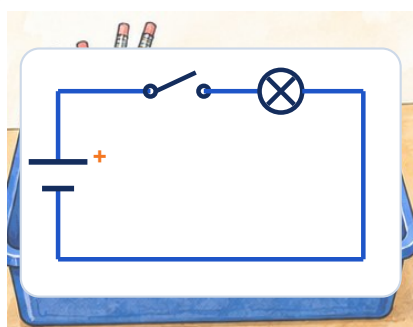
Dois ramos

L1 e L2 presentes



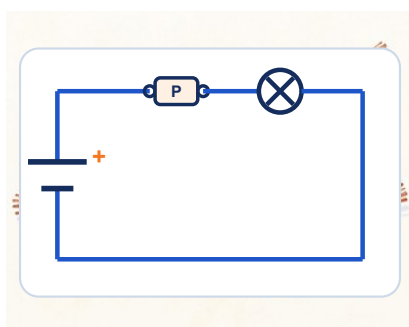
Percurso inteiro

1 lâmpada, sem chave



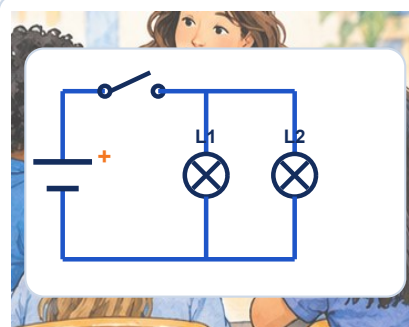
Chave aberta

1 lâmpada



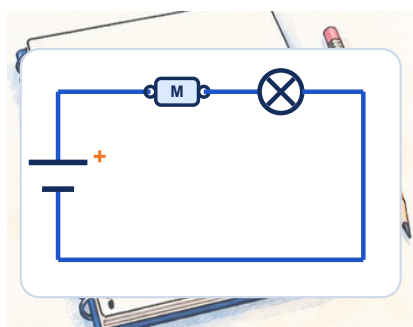
Amostra de plástico

teste no intervalo



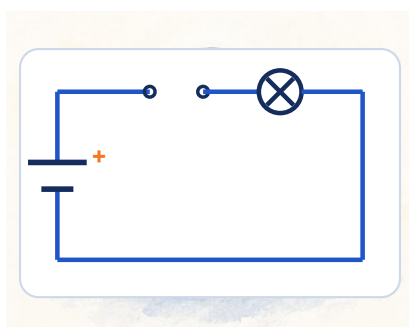
Chave antes dos ramos

chave aberta



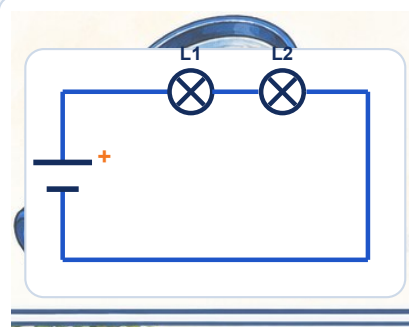
Amostra metálica

teste no intervalo



Fio solto

1 lâmpada



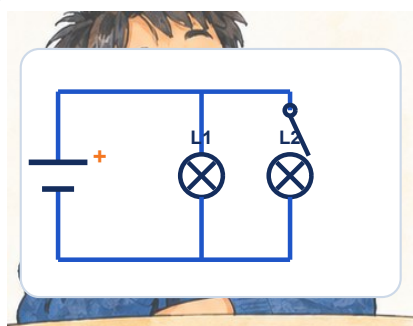
Duas em série

L1 e L2 presentes

Circuitos em investigação | cartelas

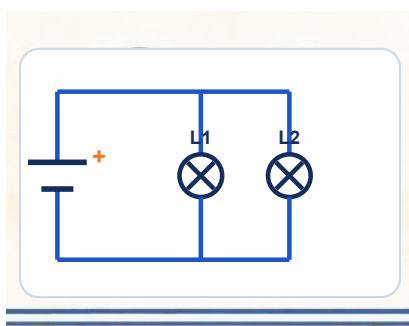
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 16



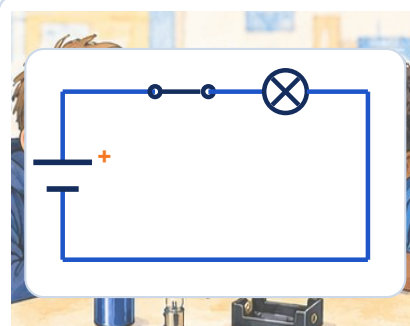
Chave no ramo L2

chave aberta



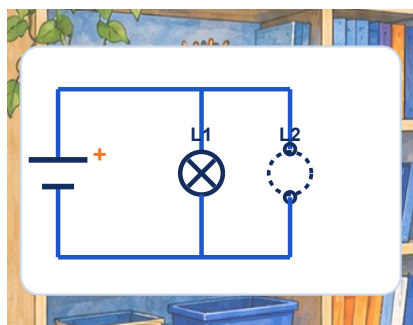
Dois ramos

L1 e L2 presentes



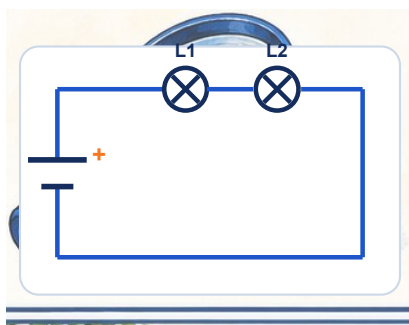
Chave fechada

1 lâmpada



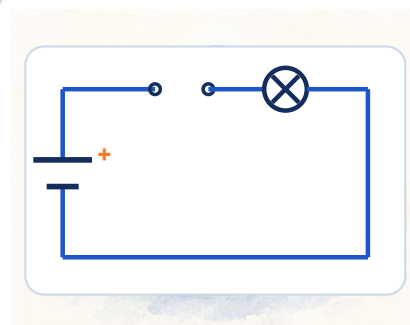
Paralelo sem L2

soquete de L2 vazio



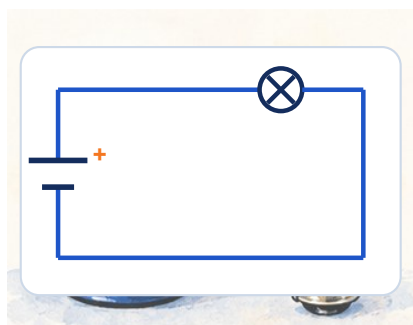
Duas em série

L1 e L2 presentes



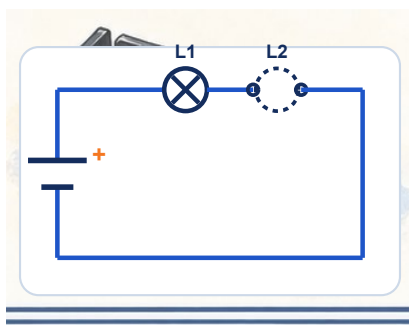
Fio solto

1 lâmpada



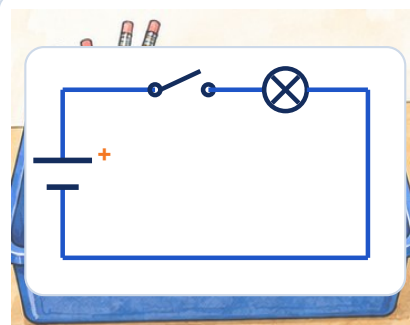
Percurso inteiro

1 lâmpada, sem chave



Série com L2 retirada

soquete vazio



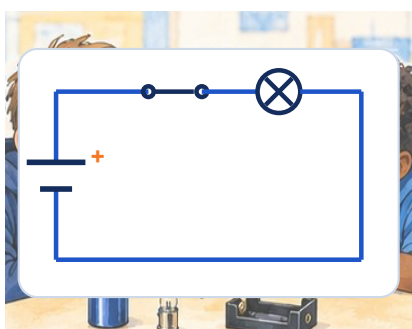
Chave aberta

1 lâmpada

Circuitos em investigação | cartelas

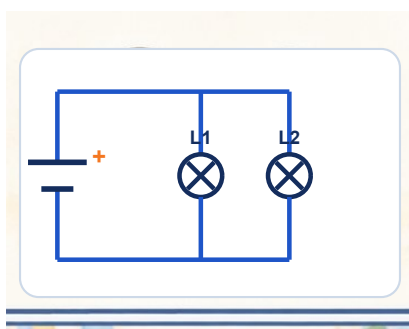
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 17



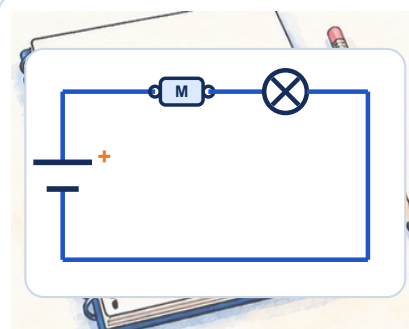
Chave fechada

1 lâmpada



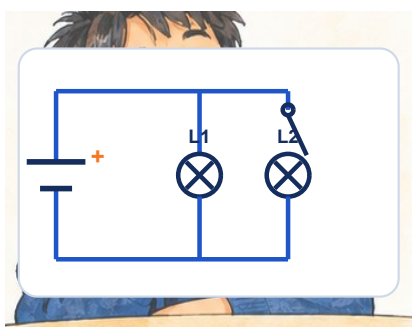
Dois ramos

L1 e L2 presentes



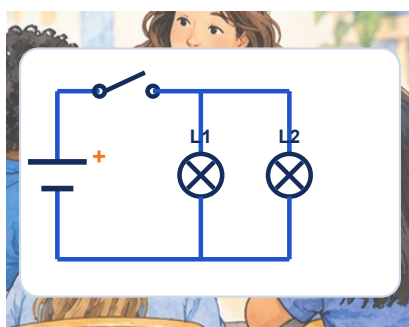
Amostra metálica

teste no intervalo



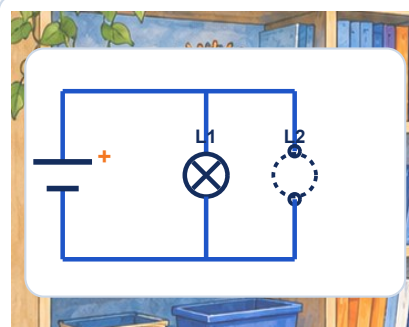
Chave no ramo L2

chave aberta



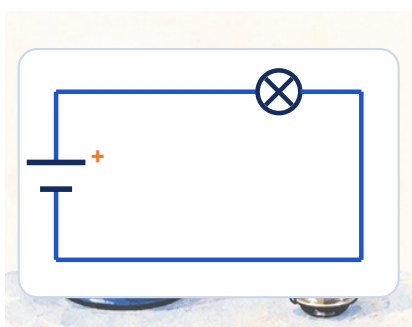
Chave antes dos ramos

chave aberta



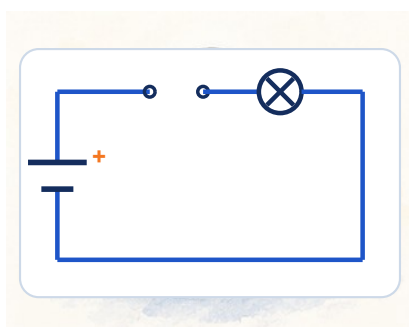
Paralelo sem L2

soquete de L2 vazio



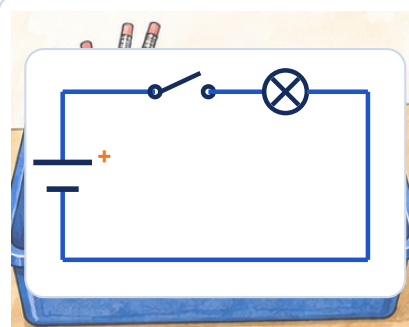
Percurso inteiro

1 lâmpada, sem chave



Fio solto

1 lâmpada



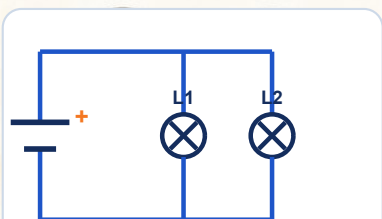
Chave aberta

1 lâmpada

Circuitos em investigação | cartelas

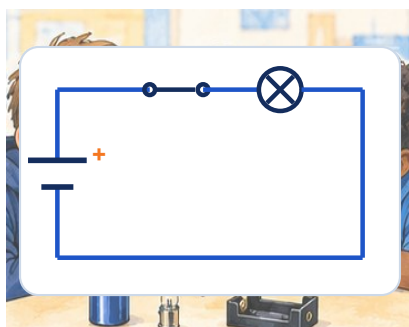
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 18



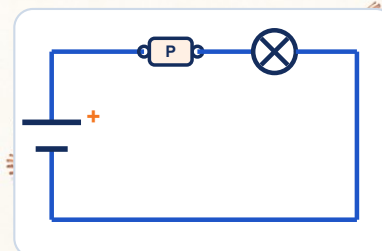
Dois ramos

L1 e L2 presentes



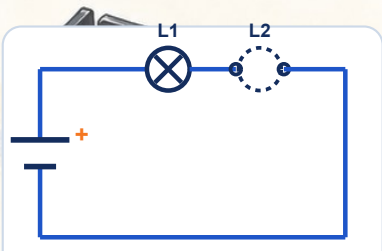
Chave fechada

1 lâmpada



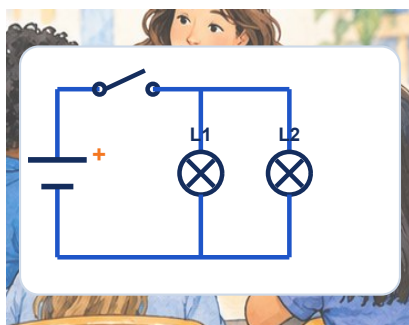
Amostra de plástico

teste no intervalo



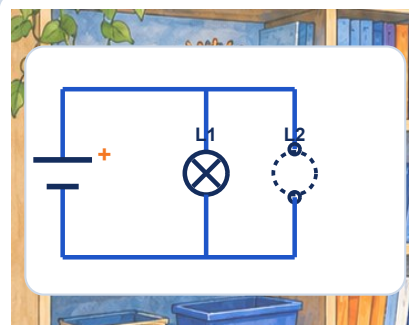
Série com L2 retirada

soquete vazio



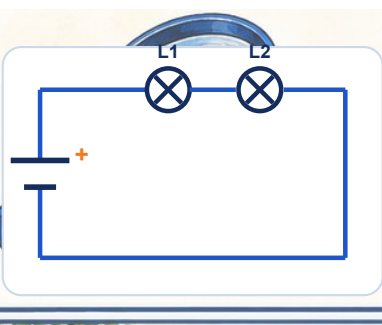
Chave antes dos ramos

chave aberta



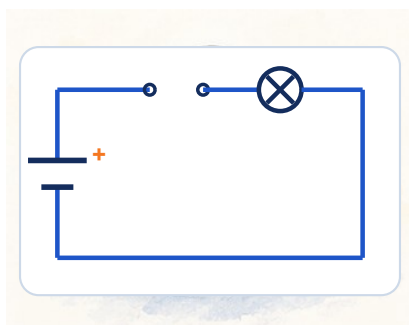
Paralelo sem L2

soquete de L2 vazio



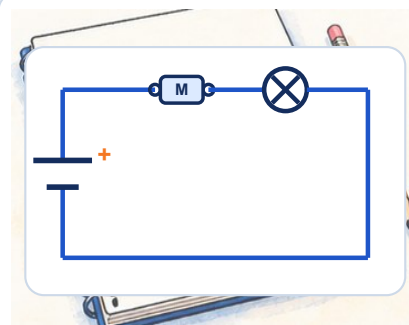
Duas em série

L1 e L2 presentes



Fio solto

1 lâmpada



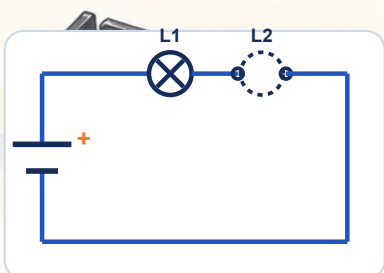
Amostra metálica

teste no intervalo

Circuitos em investigação | cartelas

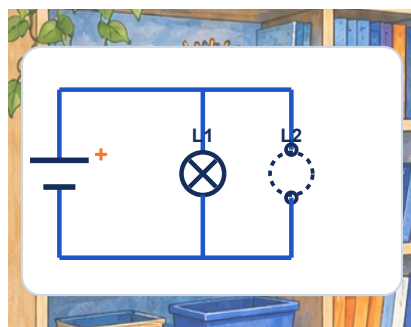
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 19



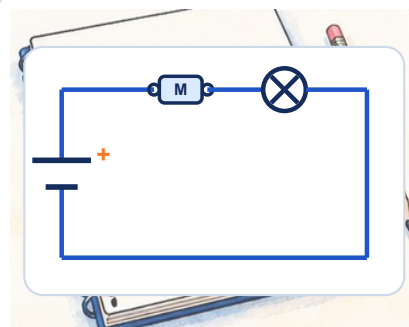
Série com L2 retirada

soquete vazio



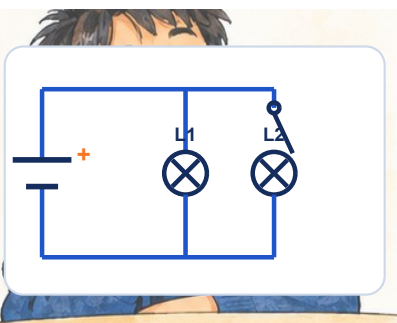
Paralelo sem L2

soquete de L2 vazio



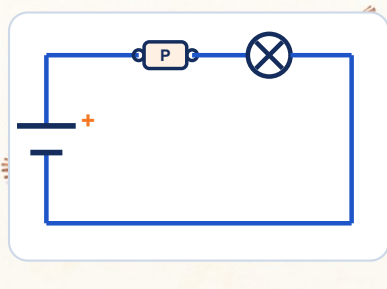
Amostra metálica

teste no intervalo



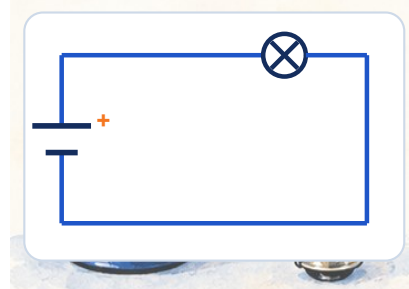
Chave no ramo L2

chave aberta



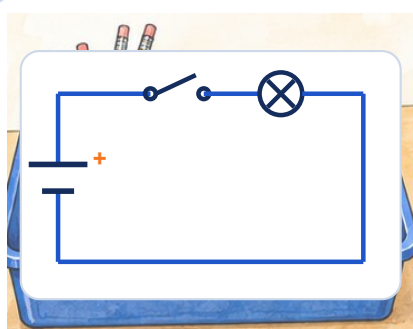
Amostra de plástico

teste no intervalo



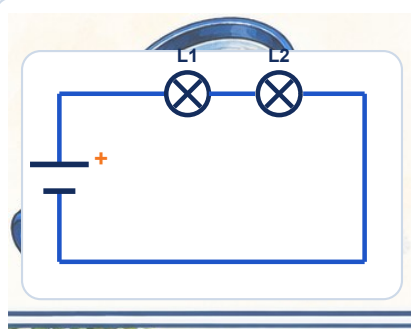
Percurso inteiro

1 lâmpada, sem chave



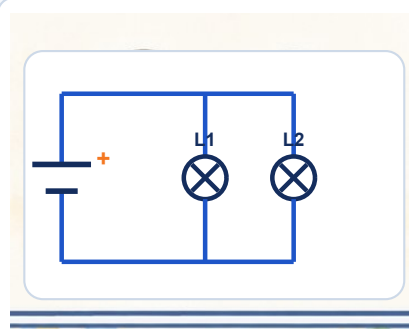
Chave aberta

1 lâmpada



Duas em série

L1 e L2 presentes



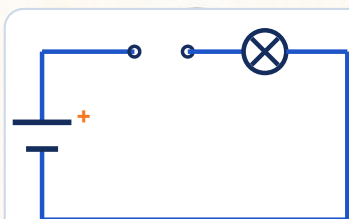
Dois ramos

L1 e L2 presentes

Circuitos em investigação | cartelas

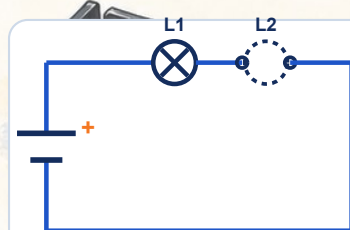
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 20



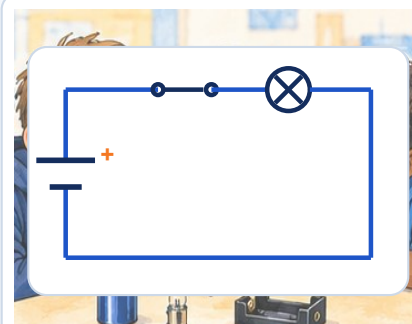
Fio solto

1 lâmpada



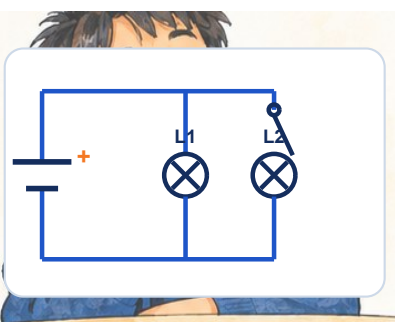
Série com L2 retirada

soquete vazio



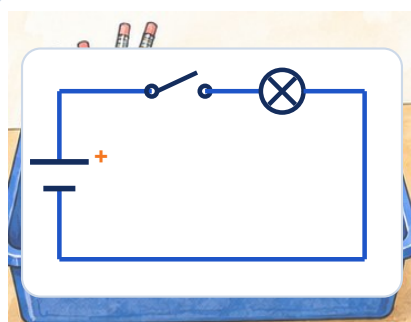
Chave fechada

1 lâmpada



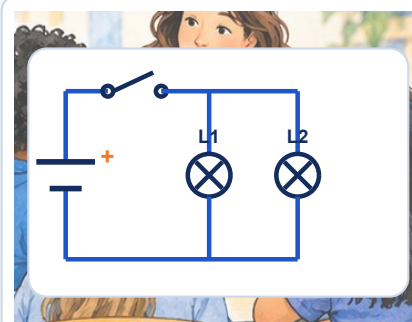
Chave no ramo L2

chave aberta



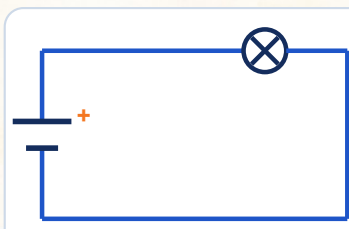
Chave aberta

1 lâmpada



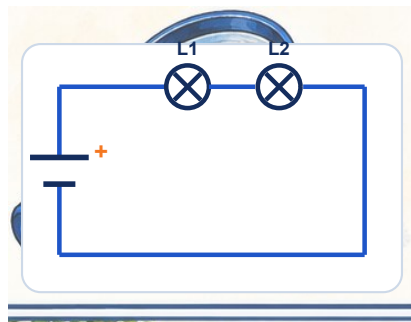
Chave antes dos ramos

chave aberta



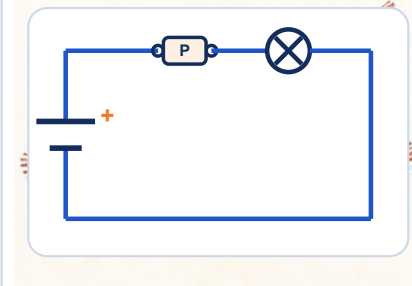
Percurso inteiro

1 lâmpada, sem chave



Duas em série

L1 e L2 presentes



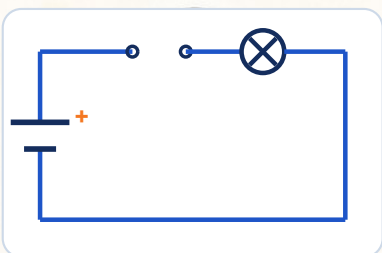
Amostra de plástico

teste no intervalo

Circuitos em investigação | cartelas

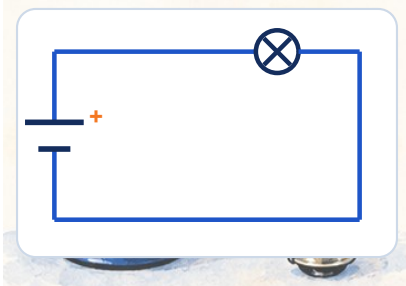
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 21



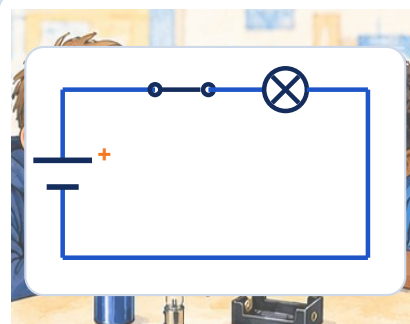
Fio solto

1 lâmpada



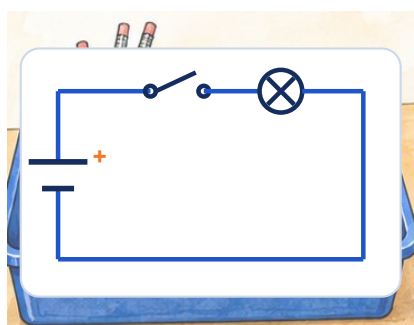
Percurso inteiro

1 lâmpada, sem chave



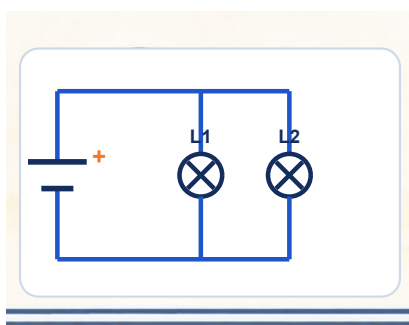
Chave fechada

1 lâmpada



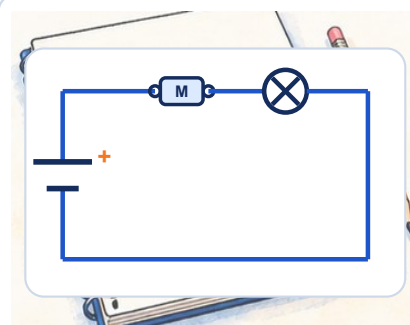
Chave aberta

1 lâmpada



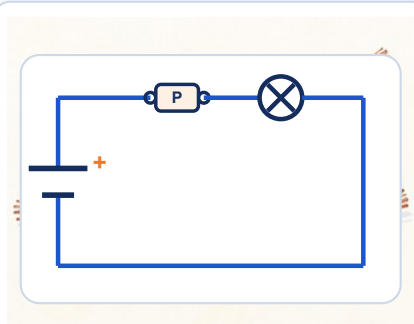
Dois ramos

L1 e L2 presentes



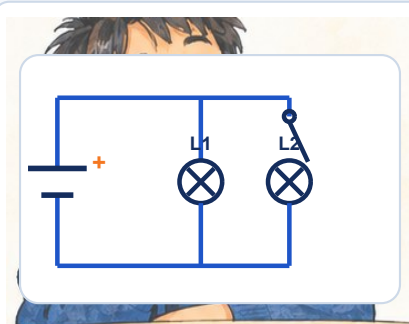
Amostra metálica

teste no intervalo



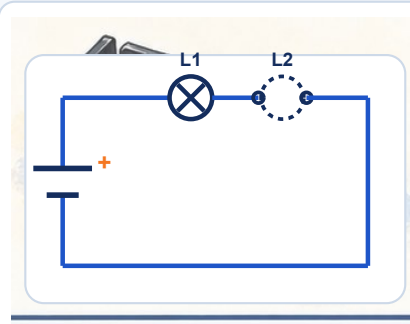
Amostra de plástico

teste no intervalo



Chave no ramo L2

chave aberta



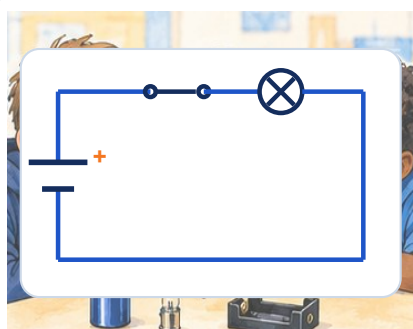
Série com L2 retirada

soquete vazio

Circuitos em investigação | cartelas

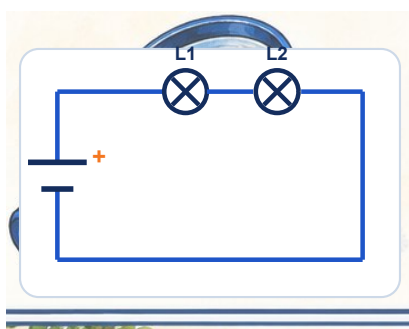
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 22



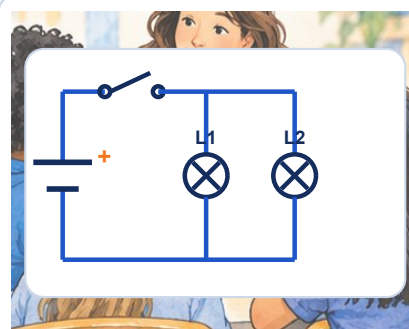
Chave fechada

1 lâmpada



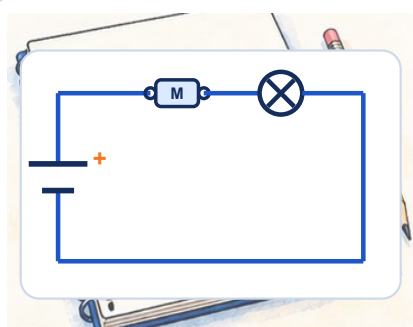
Duas em série

L1 e L2 presentes



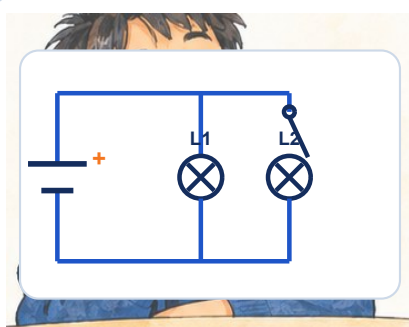
Chave antes dos ramos

chave aberta



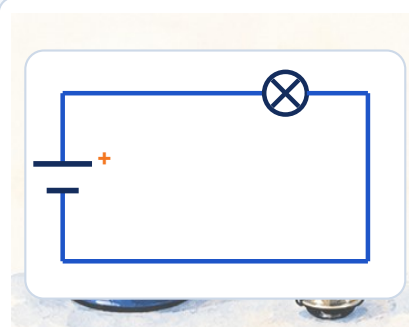
Amostra metálica

teste no intervalo



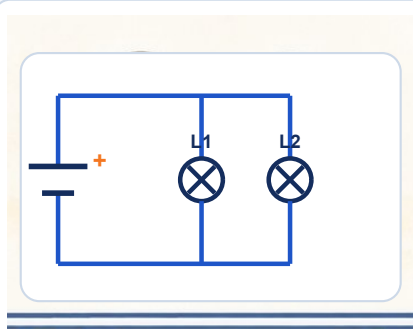
Chave no ramo L2

chave aberta



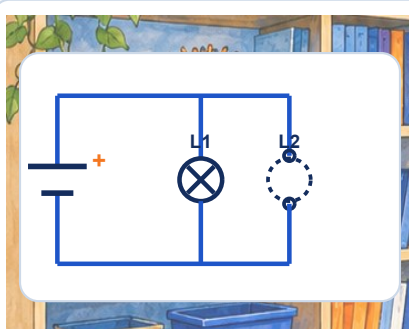
Percurso inteiro

1 lâmpada, sem chave



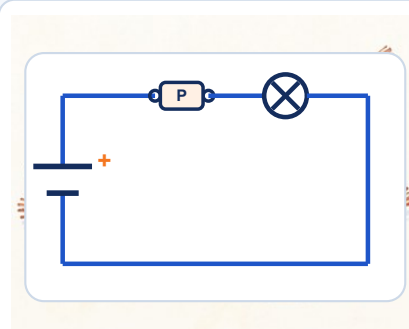
Dois ramos

L1 e L2 presentes



Paralelo sem L2

soquete de L2 vazio



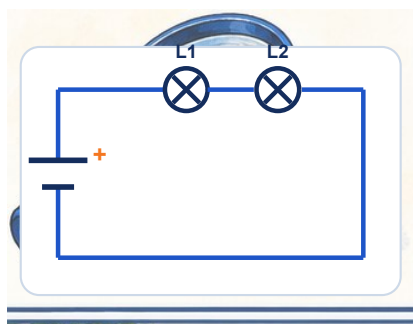
Amostra de plástico

teste no intervalo

Circuitos em investigação | cartelas

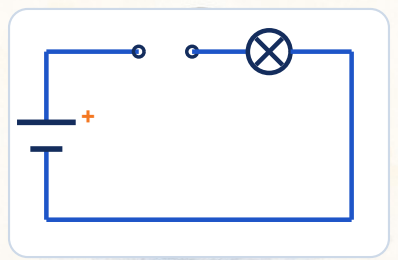
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 23



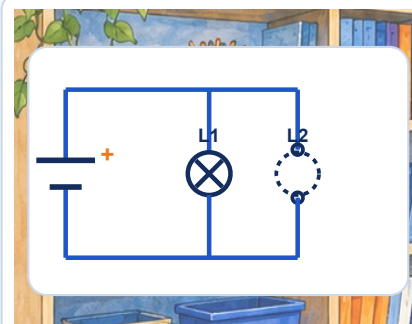
Duas em série

L1 e L2 presentes



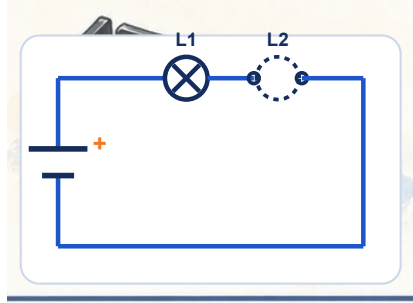
Fio solto

1 lâmpada



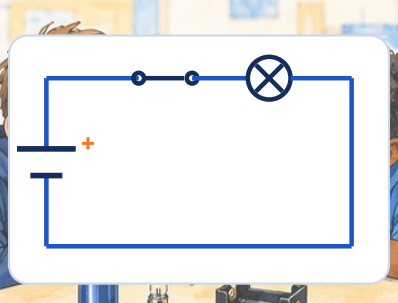
Paralelo sem L2

soquete de L2 vazio



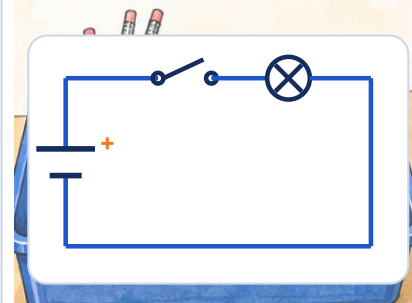
Série com L2 retirada

soquete vazio



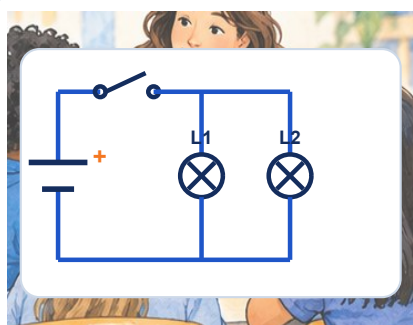
Chave fechada

1 lâmpada



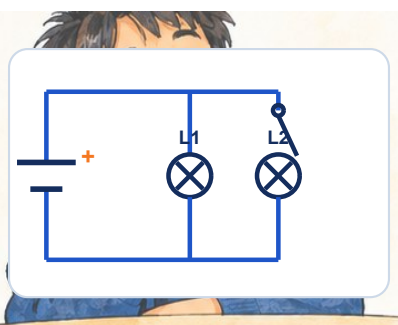
Chave aberta

1 lâmpada



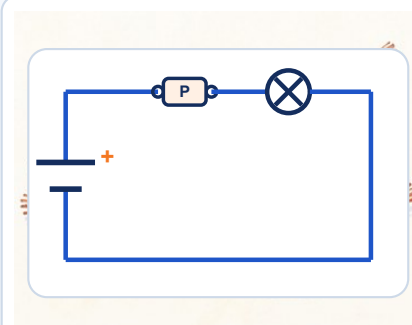
Chave antes dos ramos

chave aberta



Chave no ramo L2

chave aberta



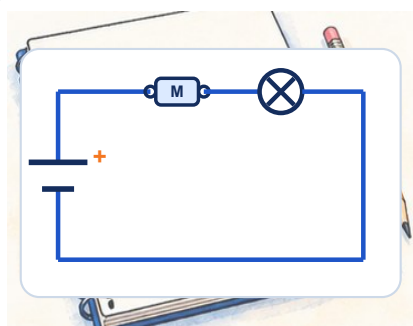
Amostra de plástico

teste no intervalo

Circuitos em investigação | cartelas

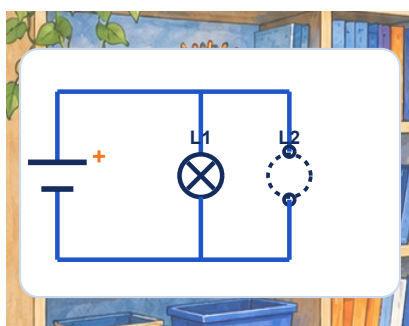
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 24



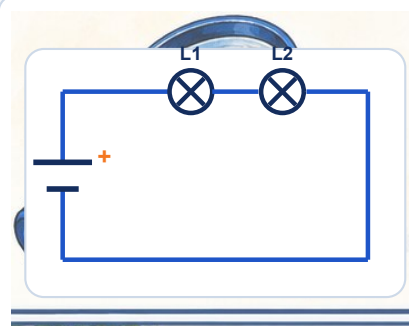
Amostra metálica

teste no intervalo



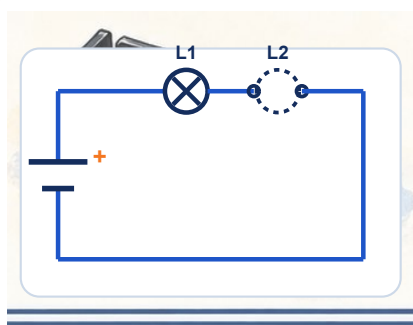
Paralelo sem L2

soquete de L2 vazio



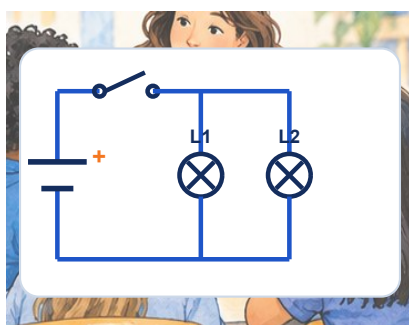
Duas em série

L1 e L2 presentes



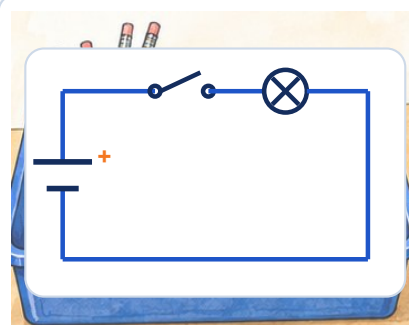
Série com L2 retirada

soquete vazio



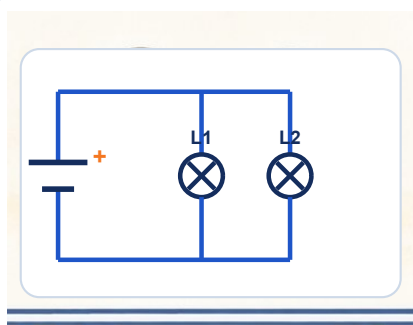
Chave antes dos ramos

chave aberta



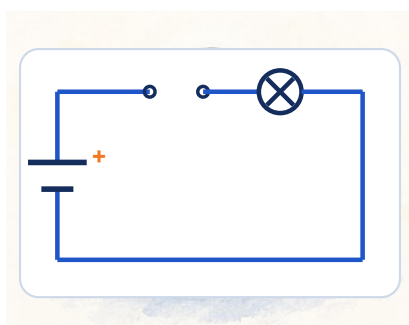
Chave aberta

1 lâmpada



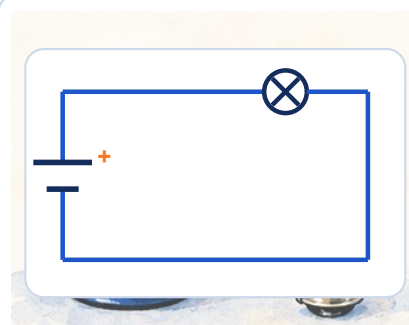
Dois ramos

L1 e L2 presentes



Fio solto

1 lâmpada



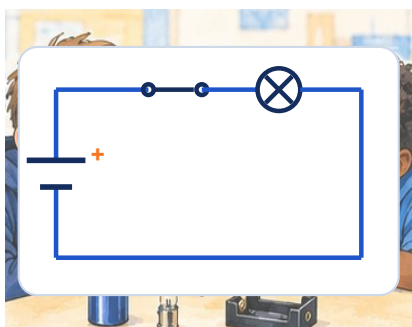
Percurso inteiro

1 lâmpada, sem chave

Circuitos em investigação | cartelas

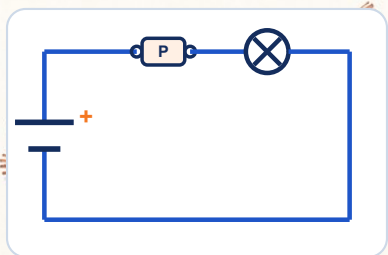
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 25



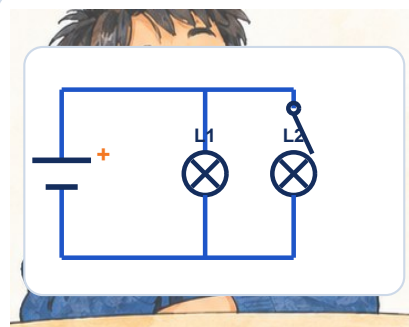
Chave fechada

1 lâmpada



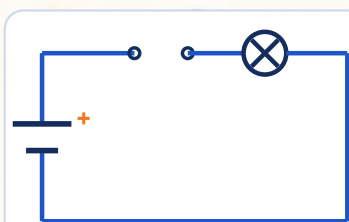
Amostra de plástico

teste no intervalo



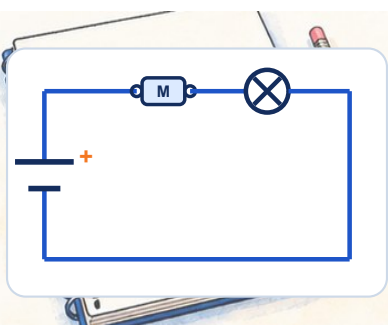
Chave no ramo L2

chave aberta



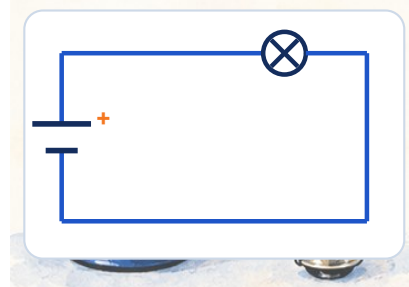
Fio solto

1 lâmpada



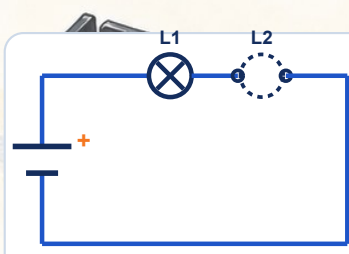
Amostra metálica

teste no intervalo



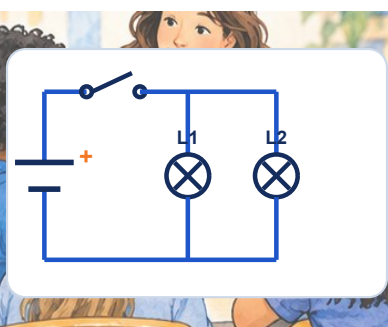
Percurso inteiro

1 lâmpada, sem chave



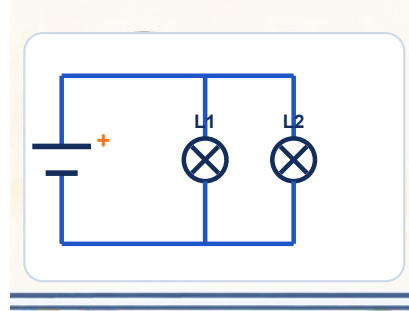
Série com L2 retirada

soquete vazio



Chave antes dos ramos

chave aberta



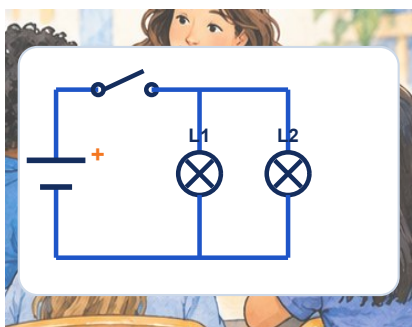
Dois ramos

L1 e L2 presentes

Circuitos em investigação | cartelas

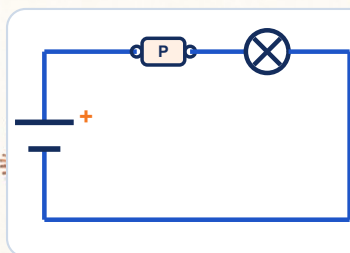
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 26



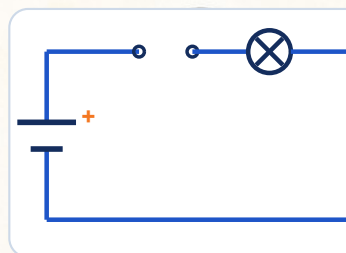
Chave antes dos ramos

chave aberta



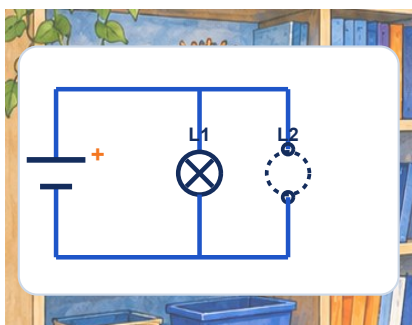
Amostra de plástico

teste no intervalo



Fio solto

1 lâmpada



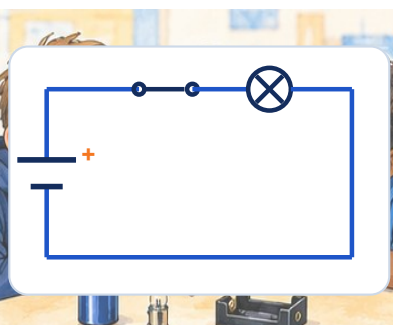
Paralelo sem L2

soquete de L2 vazio



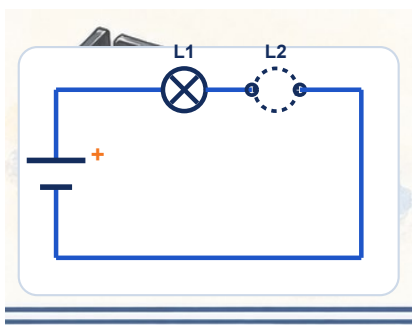
Percurso inteiro

1 lâmpada, sem chave



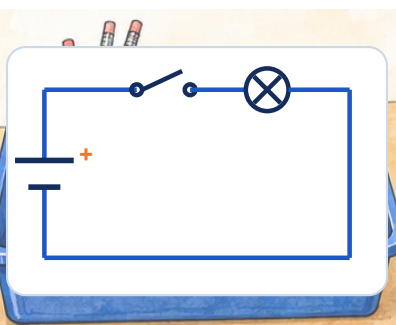
Chave fechada

1 lâmpada



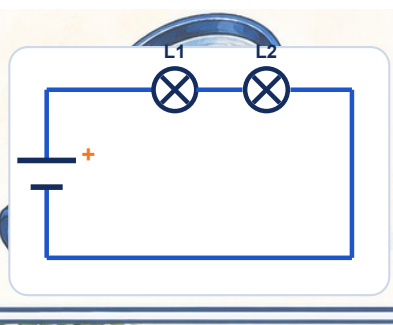
Série com L2 retirada

soquete vazio



Chave aberta

1 lâmpada



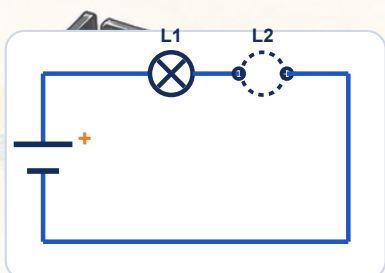
Duas em série

L1 e L2 presentes

Circuitos em investigação | cartelas

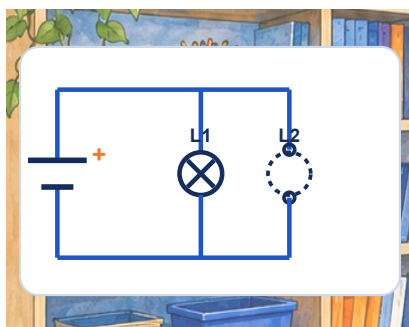
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 27



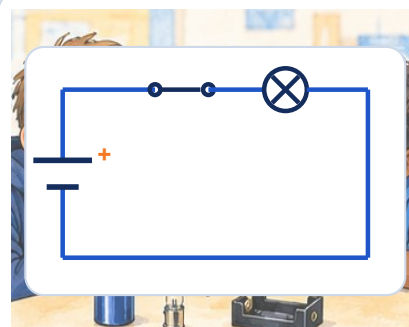
Série com L2 retirada

soquete vazio



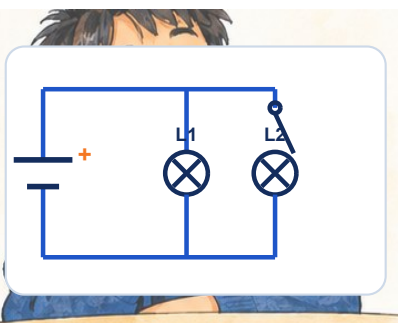
Paralelo sem L2

soquete de L2 vazio



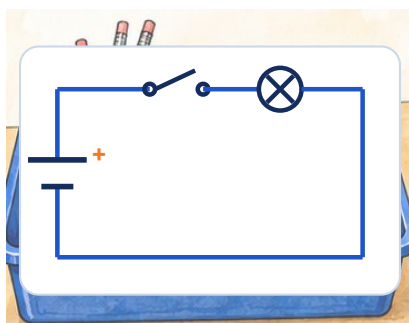
Chave fechada

1 lâmpada



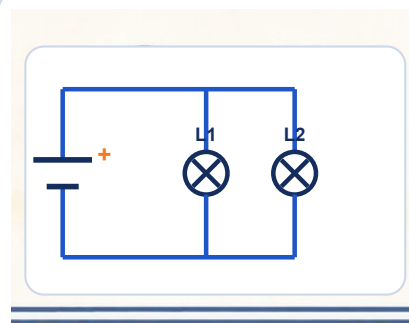
Chave no ramo L2

chave aberta



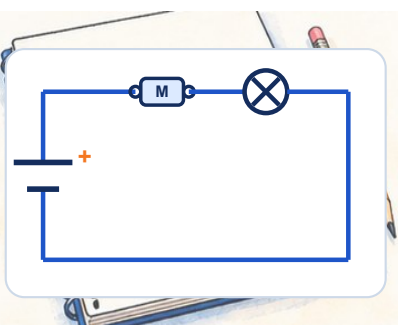
Chave aberta

1 lâmpada



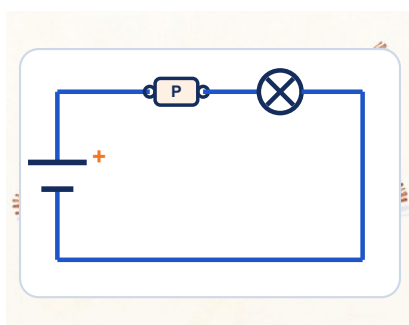
Dois ramos

L1 e L2 presentes



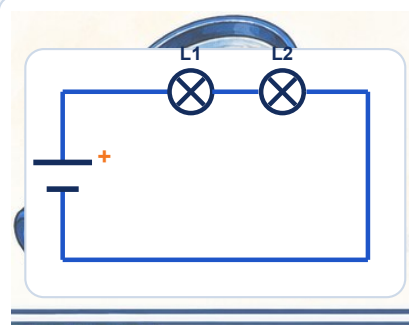
Amostra metálica

teste no intervalo



Amostra de plástico

teste no intervalo



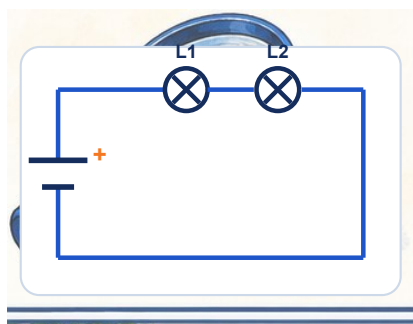
Duas em série

L1 e L2 presentes

Circuitos em investigação | cartelas

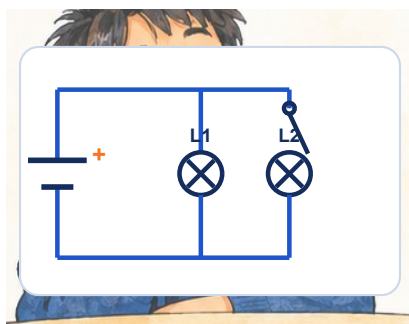
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 28



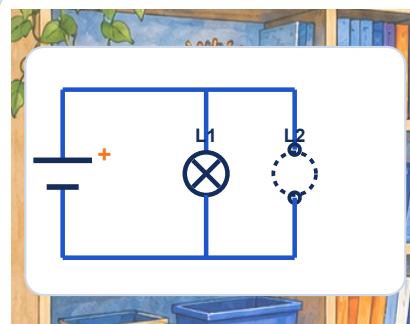
Duas em série

L1 e L2 presentes



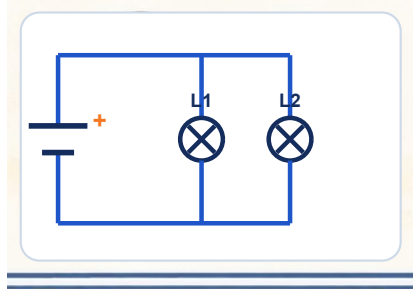
Chave no ramo L2

chave aberta



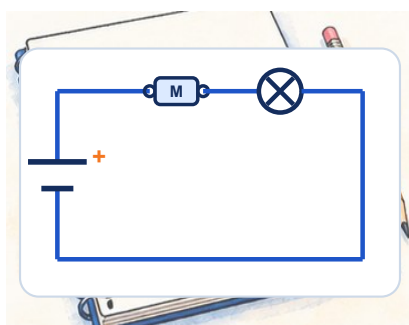
Paralelo sem L2

soquete de L2 vazio



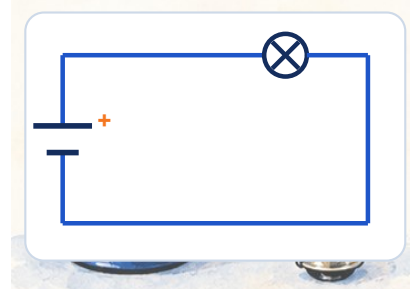
Dois ramos

L1 e L2 presentes



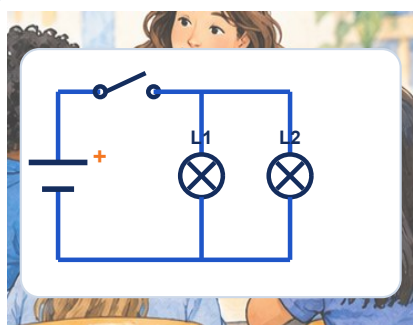
Amostra metálica

teste no intervalo



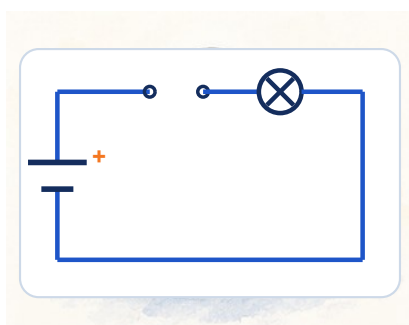
Percurso inteiro

1 lâmpada, sem chave



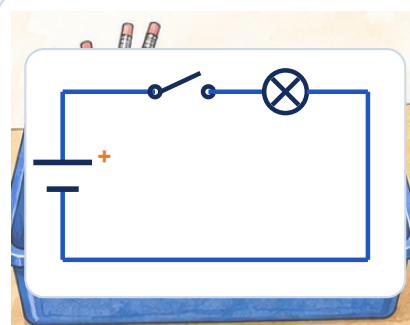
Chave antes dos ramos

chave aberta



Fio solto

1 lâmpada



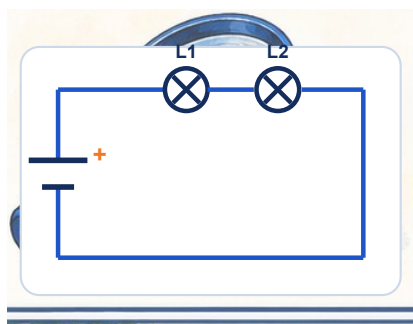
Chave aberta

1 lâmpada

Circuitos em investigação | cartelas

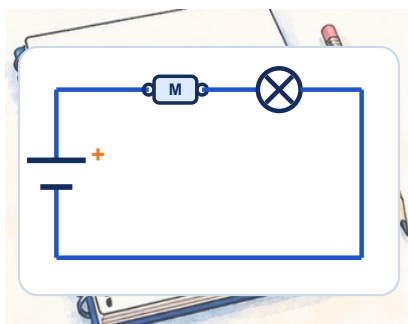
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 29



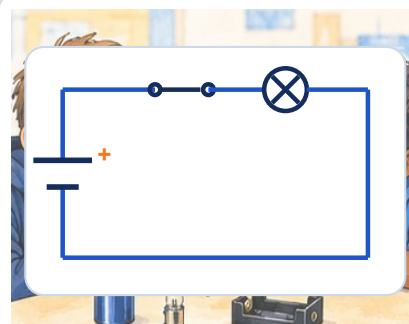
Duas em série

L1 e L2 presentes



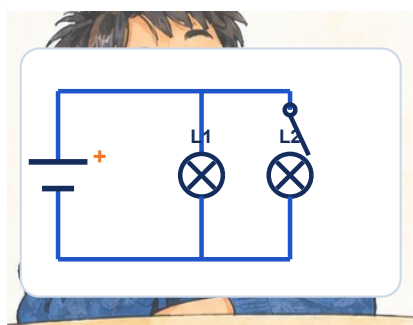
Amostra metálica

teste no intervalo



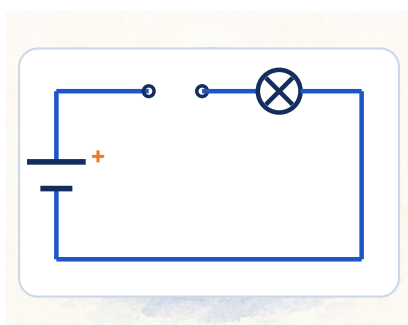
Chave fechada

1 lâmpada



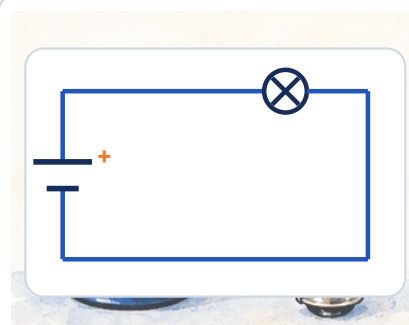
Chave no ramo L2

chave aberta



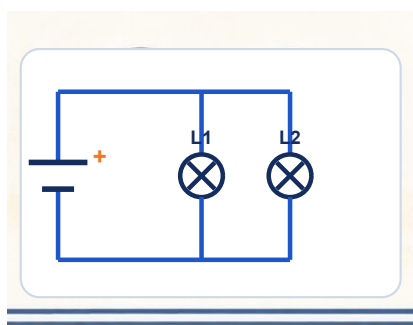
Fio solto

1 lâmpada



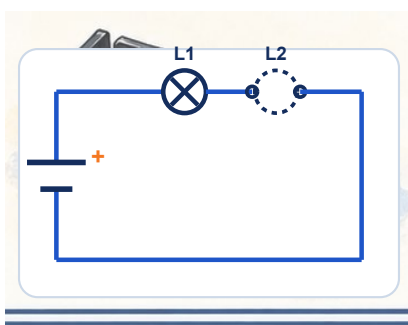
Percurso inteiro

1 lâmpada, sem chave



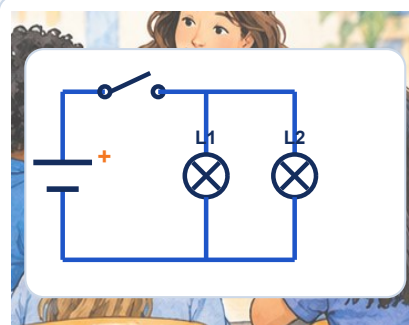
Dois ramos

L1 e L2 presentes



Série com L2 retirada

soquete vazio



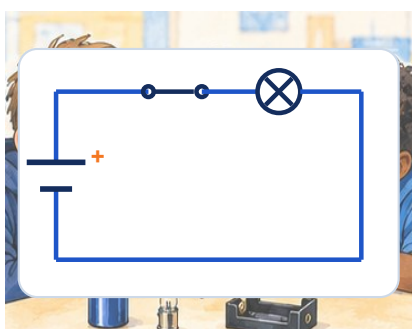
Chave antes dos ramos

chave aberta

Circuitos em investigação | cartelas

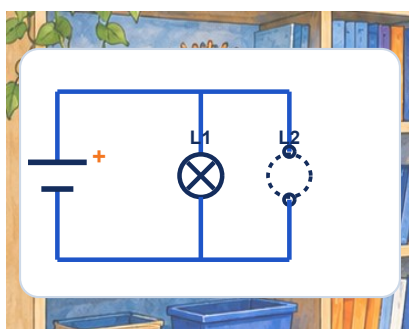
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 30



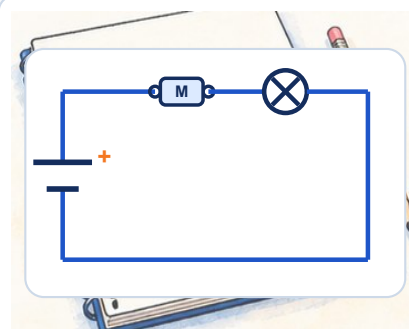
Chave fechada

1 lâmpada



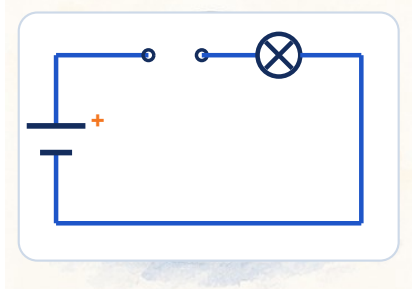
Paralelo sem L2

soquete de L2 vazio



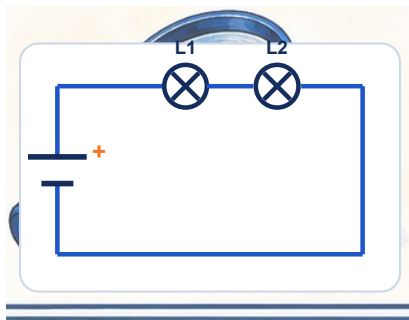
Amostra metálica

teste no intervalo



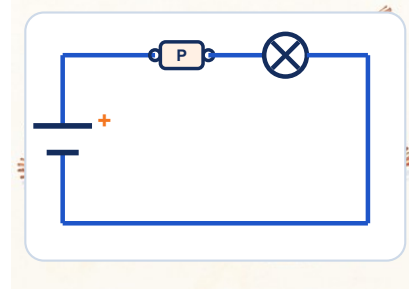
Fio solto

1 lâmpada



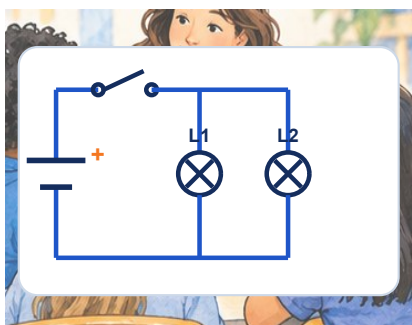
Duas em série

L1 e L2 presentes



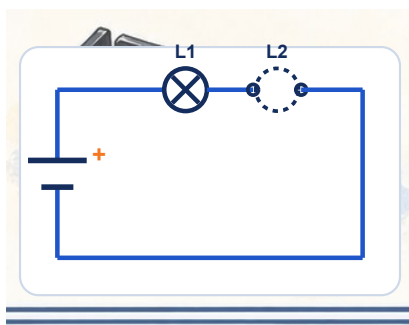
Amostra de plástico

teste no intervalo



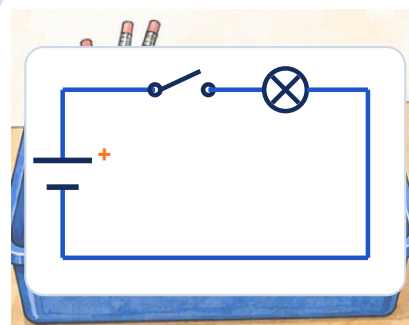
Chave antes dos ramos

chave aberta



Série com L2 retirada

soquete vazio



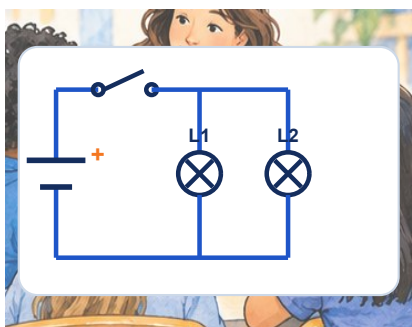
Chave aberta

1 lâmpada

Circuitos em investigação | cartelas

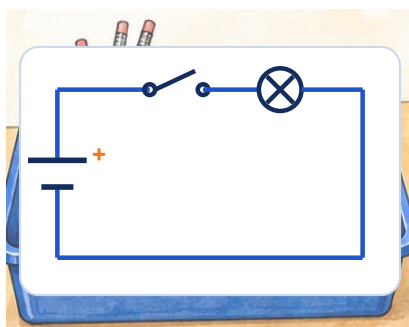
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 31



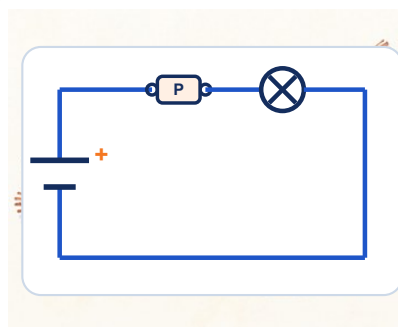
Chave antes dos ramos

chave aberta



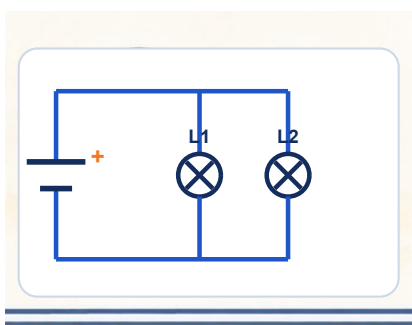
Chave aberta

1 lâmpada



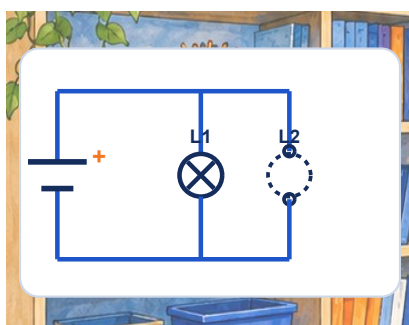
Amostra de plástico

teste no intervalo



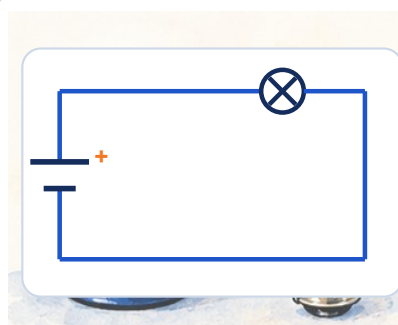
Dois ramos

L1 e L2 presentes



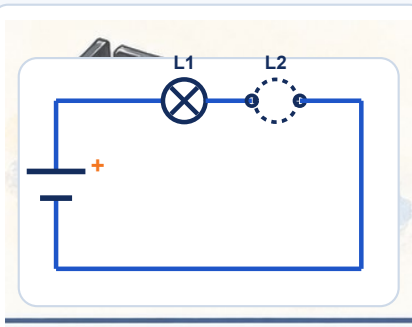
Paralelo sem L2

soquete de L2 vazio



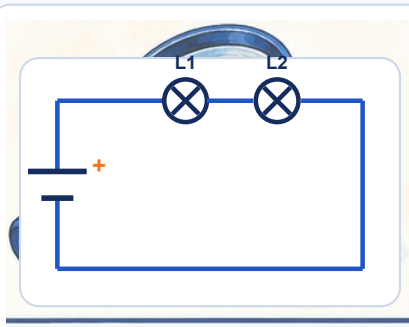
Percurso inteiro

1 lâmpada, sem chave



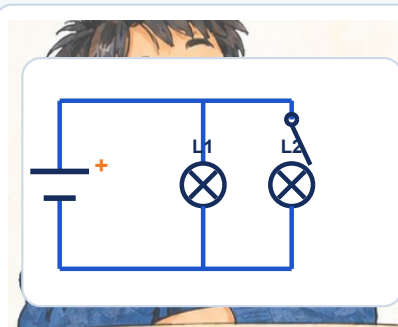
Série com L2 retirada

soquete vazio



Duas em série

L1 e L2 presentes



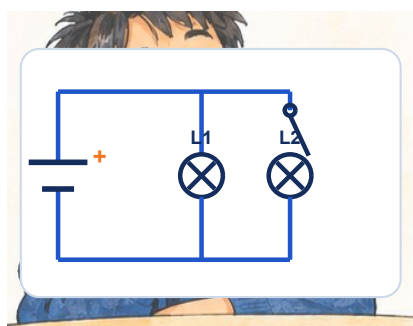
Chave no ramo L2

chave aberta

Circuitos em investigação | cartelas

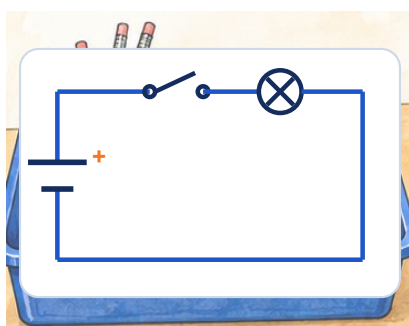
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 32



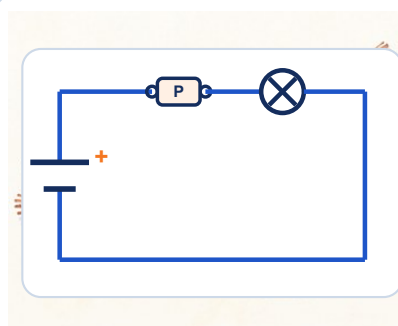
Chave no ramo L2

chave aberta



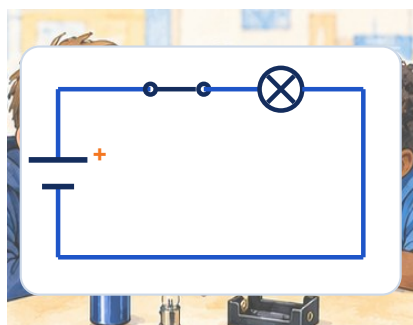
Chave aberta

1 lâmpada



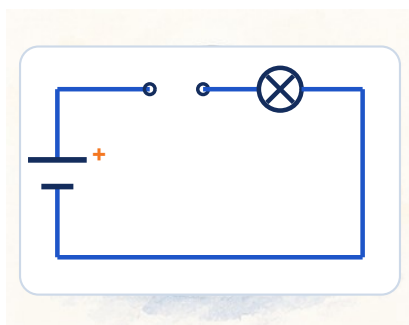
Amostra de plástico

teste no intervalo



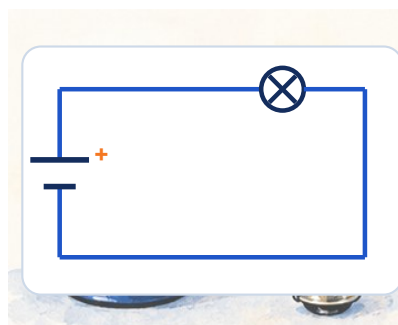
Chave fechada

1 lâmpada



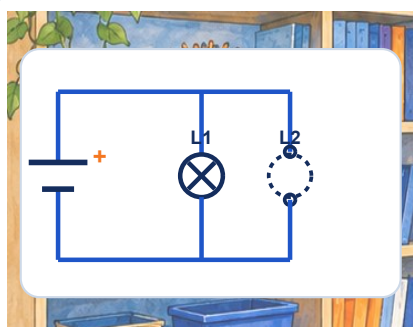
Fio solto

1 lâmpada



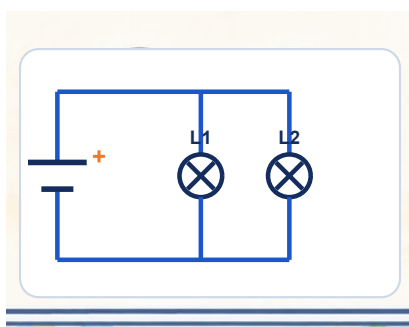
Percurso inteiro

1 lâmpada, sem chave



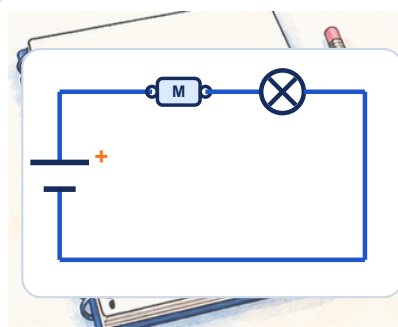
Paralelo sem L2

soquete de L2 vazio



Dois ramos

L1 e L2 presentes



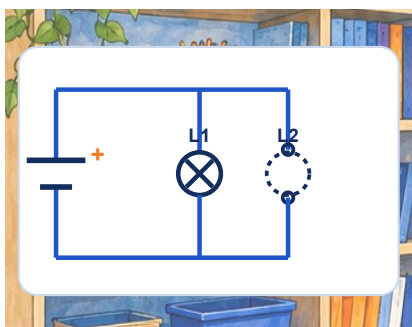
Amostra metálica

teste no intervalo

Circuitos em investigação | cartelas

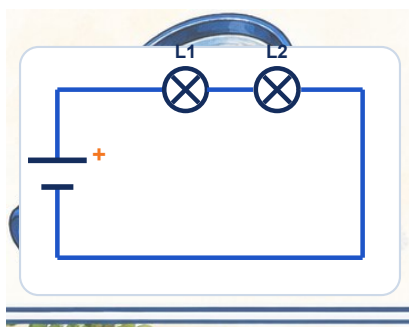
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 33



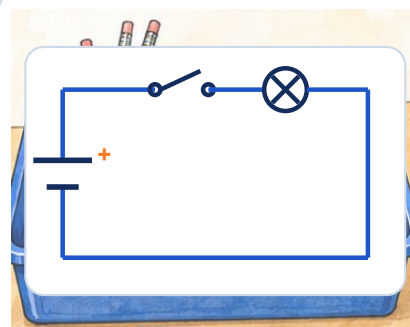
Paralelo sem L2

soquete de L2 vazio



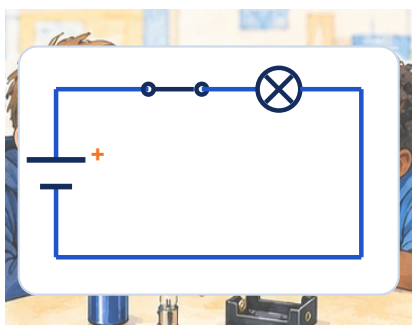
Duas em série

L1 e L2 presentes



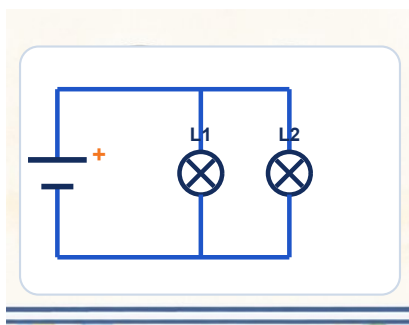
Chave aberta

1 lâmpada



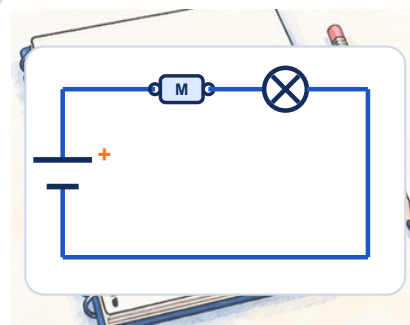
Chave fechada

1 lâmpada



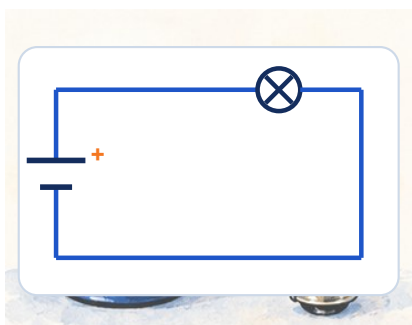
Dois ramos

L1 e L2 presentes



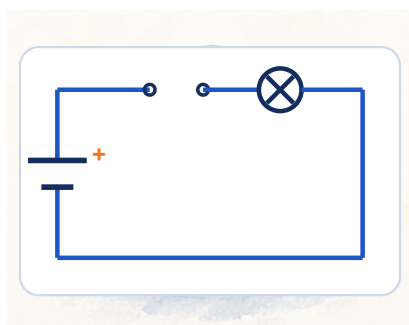
Amostra metálica

teste no intervalo



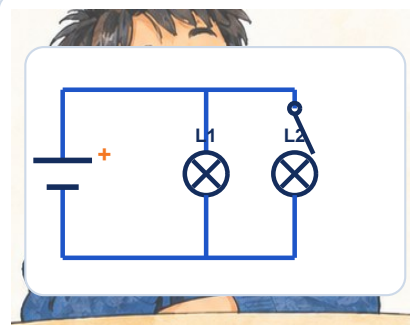
Percurso inteiro

1 lâmpada, sem chave



Fio solto

1 lâmpada



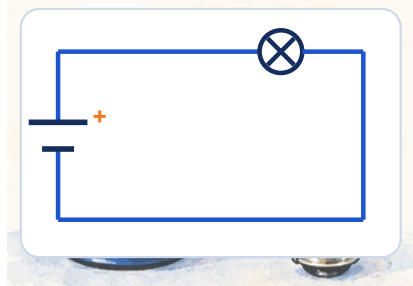
Chave no ramo L2

chave aberta

Circuitos em investigação | cartelas

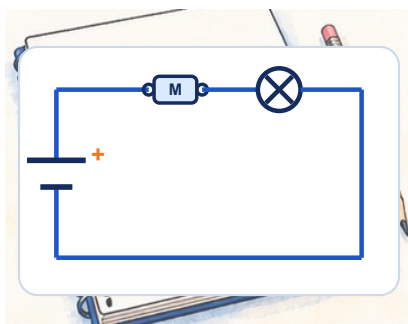
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 34



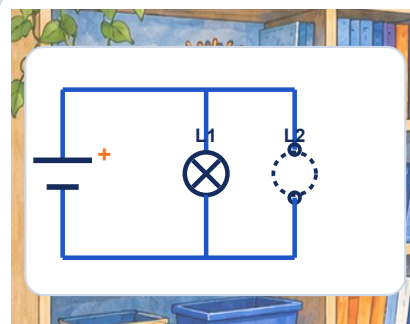
Percurso inteiro

1 lâmpada, sem chave



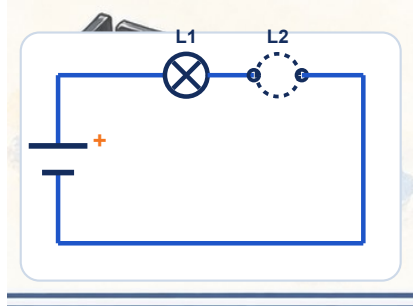
Amostra metálica

teste no intervalo



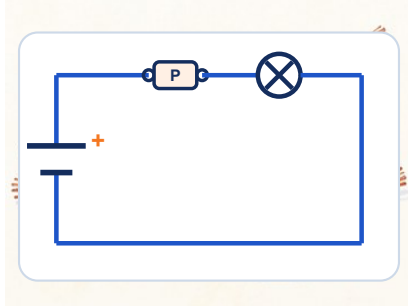
Paralelo sem L2

soquete de L2 vazio



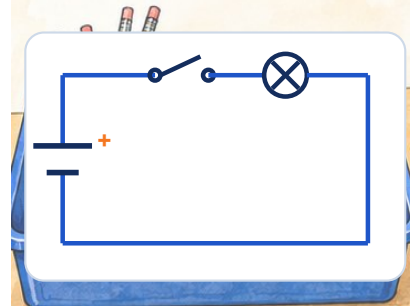
Série com L2 retirada

soquete vazio



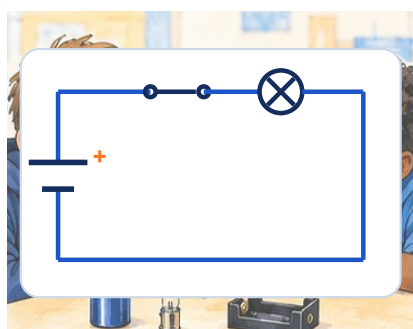
Amostra de plástico

teste no intervalo



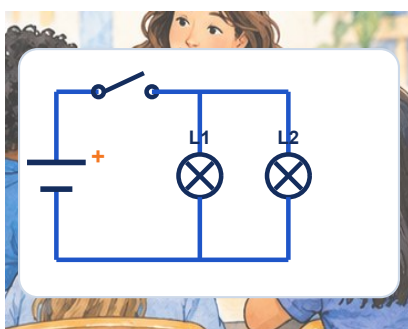
Chave aberta

1 lâmpada



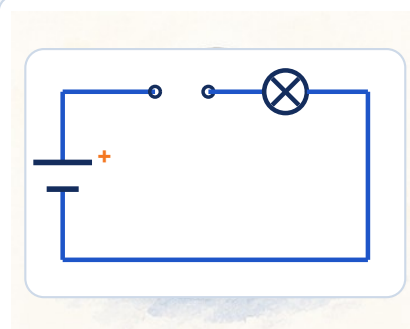
Chave fechada

1 lâmpada



Chave antes dos ramos

chave aberta



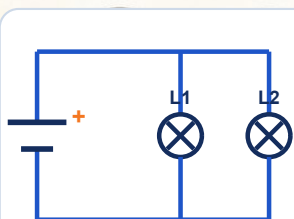
Fio solto

1 lâmpada

Circuitos em investigação | cartelas

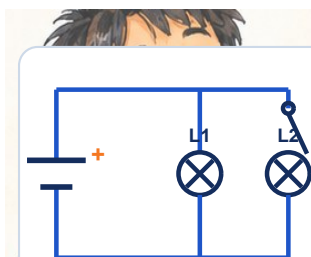
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 35



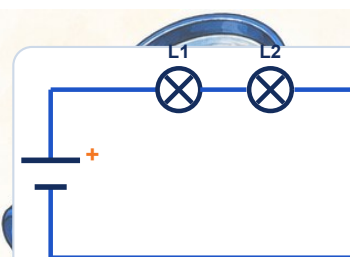
Dois ramos

L1 e L2 presentes



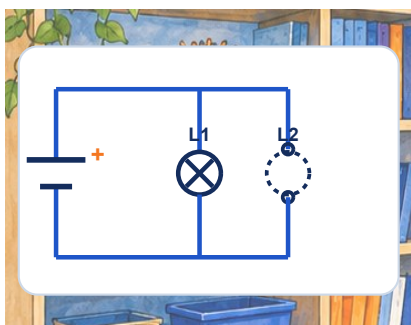
Chave no ramo L2

chave aberta



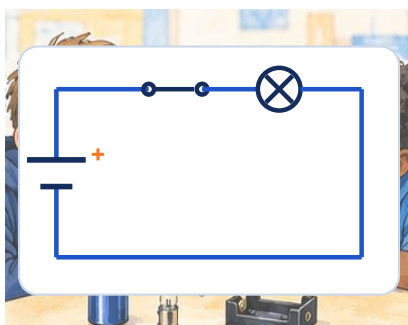
Duas em série

L1 e L2 presentes



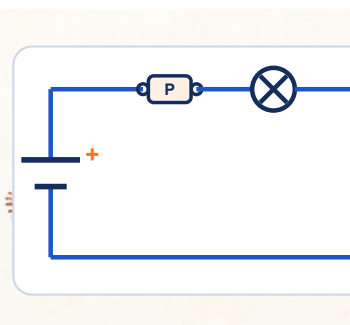
Paralelo sem L2

soquete de L2 vazio



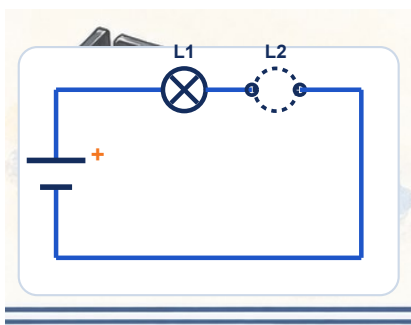
Chave fechada

1 lâmpada



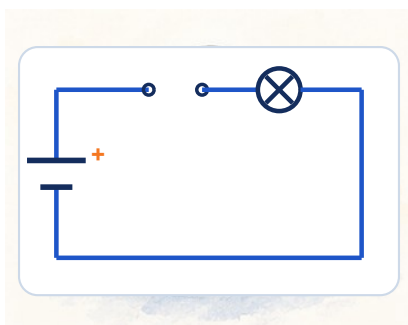
Amostra de plástico

teste no intervalo



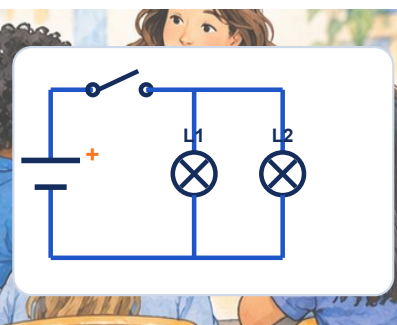
Série com L2 retirada

soquete vazio



Fio solto

1 lâmpada



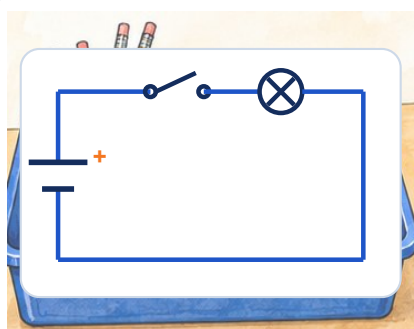
Chave antes dos ramos

chave aberta

Circuitos em investigação | cartelas

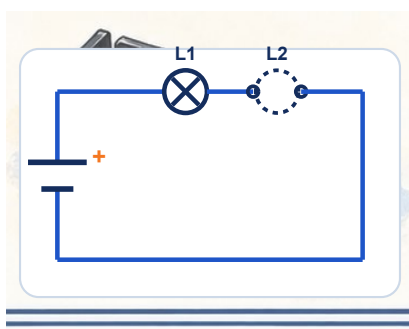
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 36



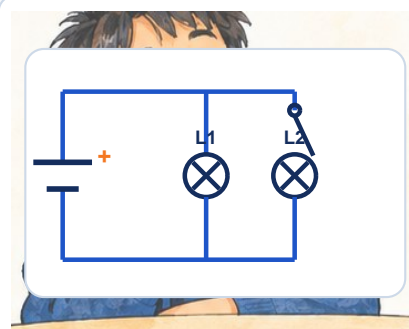
Chave aberta

1 lâmpada



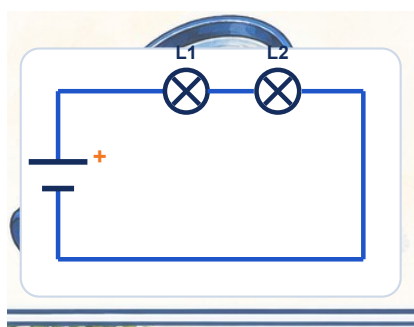
Série com L2 retirada

soquete vazio



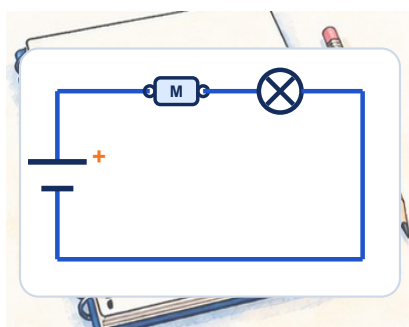
Chave no ramo L2

chave aberta



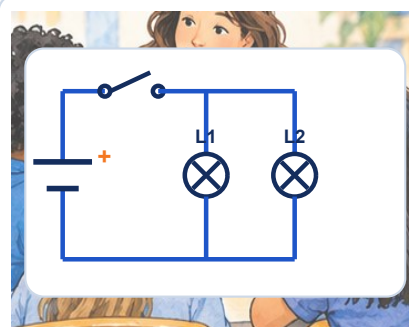
Duas em série

L1 e L2 presentes



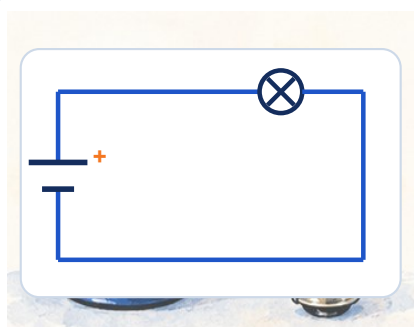
Amostra metálica

teste no intervalo



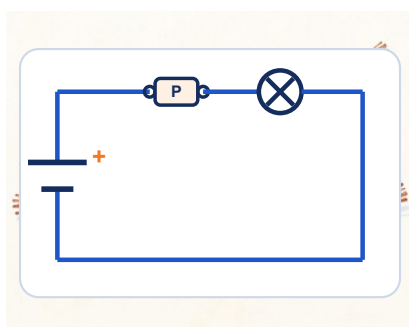
Chave antes dos ramos

chave aberta



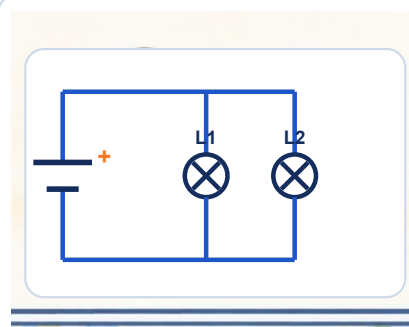
Percurso inteiro

1 lâmpada, sem chave



Amostra de plástico

teste no intervalo



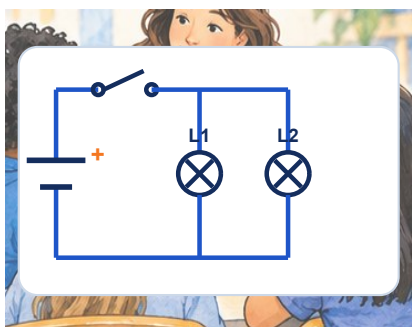
Dois ramos

L1 e L2 presentes

Circuitos em investigação | cartelas

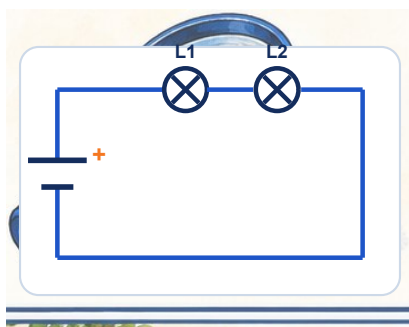
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 37



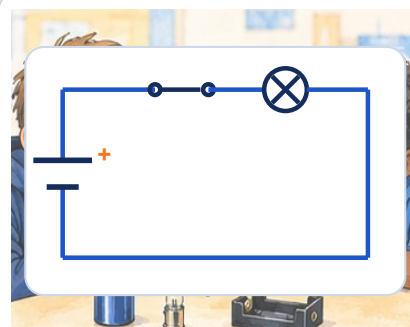
Chave antes dos ramos

chave aberta



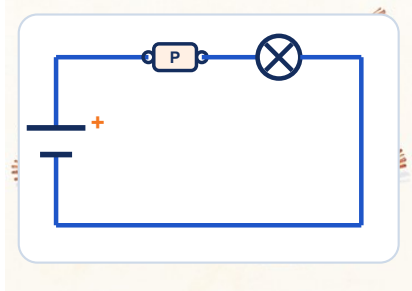
Duas em série

L1 e L2 presentes



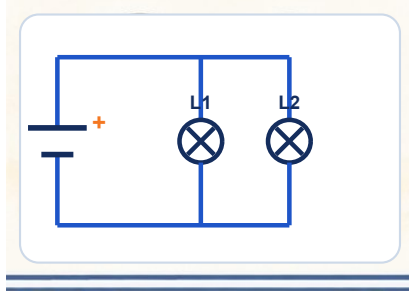
Chave fechada

1 lâmpada



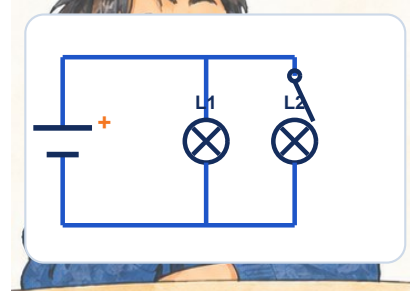
Amostra de plástico

teste no intervalo



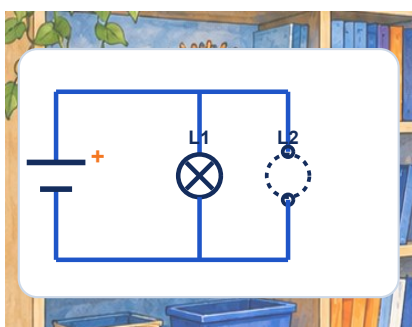
Dois ramos

L1 e L2 presentes



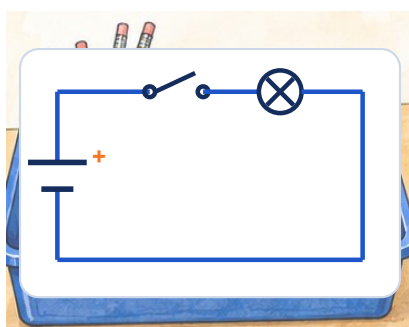
Chave no ramo L2

chave aberta



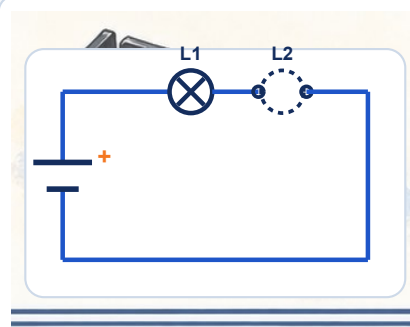
Paralelo sem L2

soquete de L2 vazio



Chave aberta

1 lâmpada



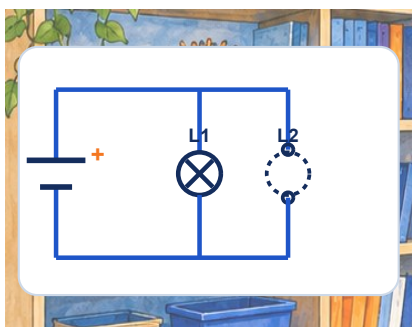
Série com L2 retirada

soquete vazio

Circuitos em investigação | cartelas

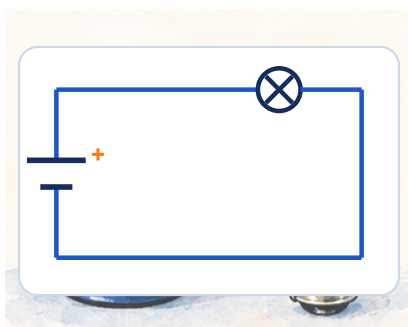
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 38



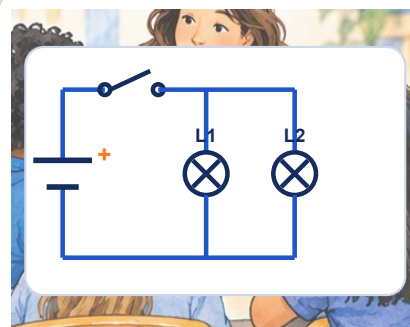
Paralelo sem L2

soquete de L2 vazio



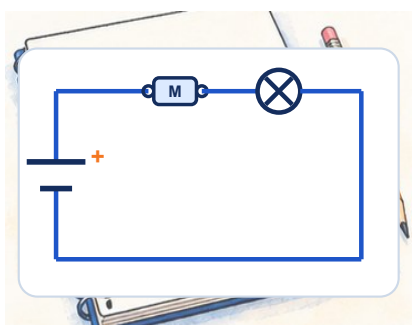
Percurso inteiro

1 lâmpada, sem chave



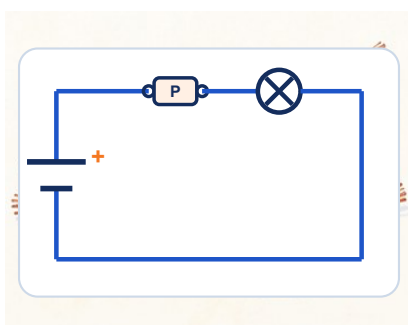
Chave antes dos ramos

chave aberta



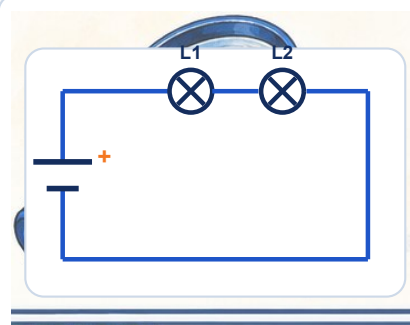
Amostra metálica

teste no intervalo



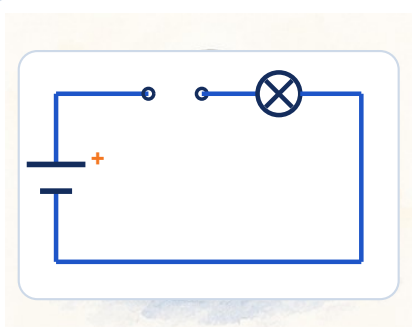
Amostra de plástico

teste no intervalo



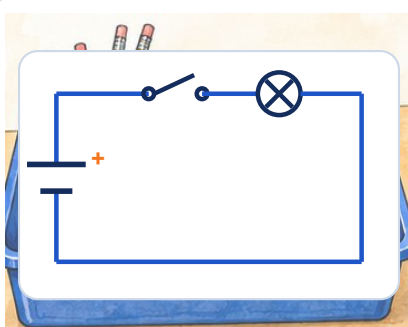
Duas em série

L1 e L2 presentes



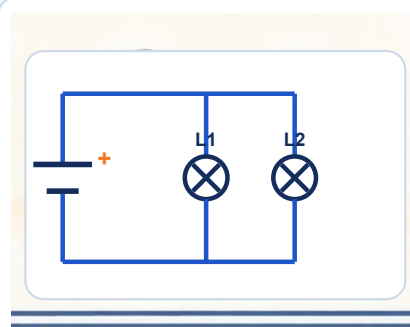
Fio solto

1 lâmpada



Chave aberta

1 lâmpada



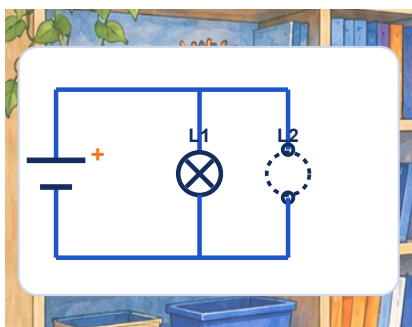
Dois ramos

L1 e L2 presentes

Circuitos em investigação | cartelas

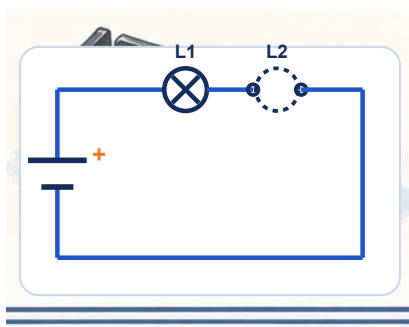
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 39



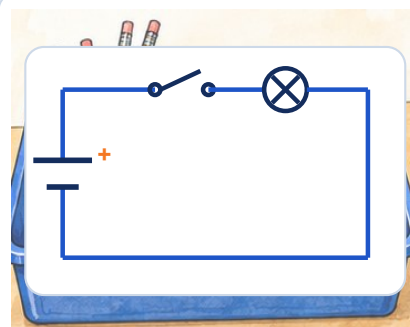
Paralelo sem L2

soquete de L2 vazio



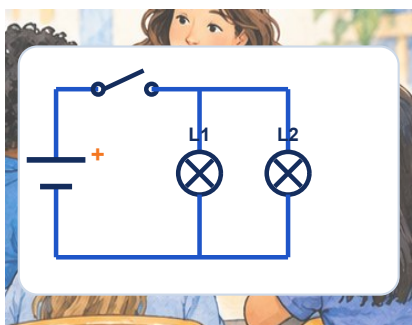
Série com L2 retirada

soquete vazio



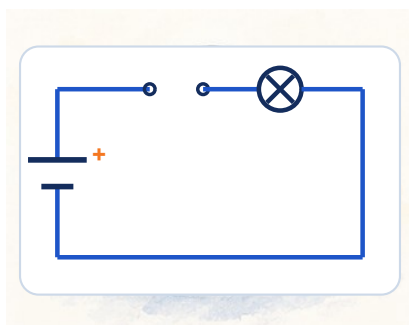
Chave aberta

1 lâmpada



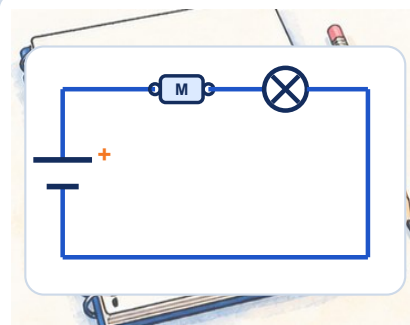
Chave antes dos ramos

chave aberta



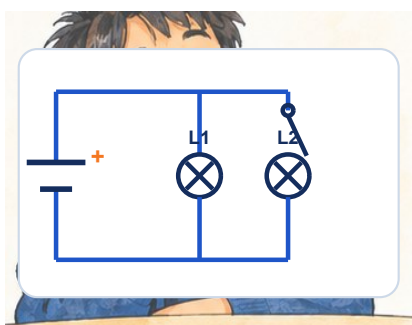
Fio solto

1 lâmpada



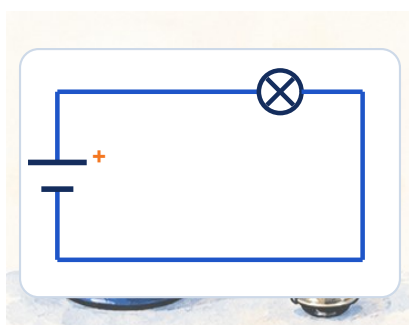
Amostra metálica

teste no intervalo



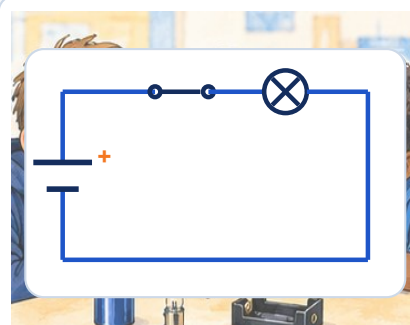
Chave no ramo L2

chave aberta



Percurso inteiro

1 lâmpada, sem chave



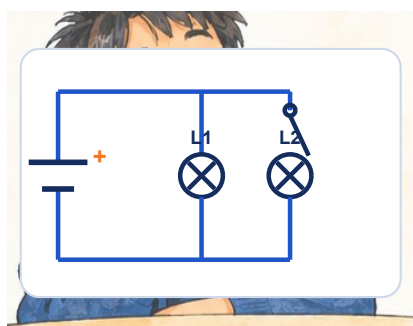
Chave fechada

1 lâmpada

Circuitos em investigação | cartelas

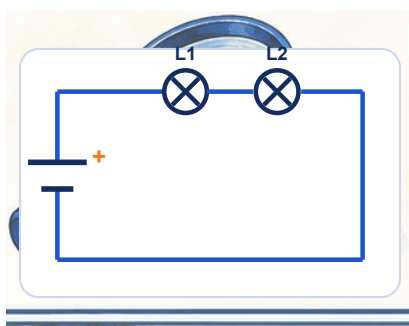
Leia a chamada, analise o esquema e marque a situação correspondente.

CARTELA 40



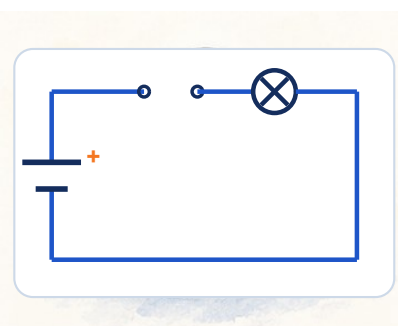
Chave no ramo L2

chave aberta



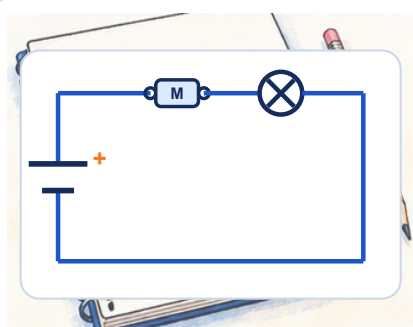
Duas em série

L1 e L2 presentes



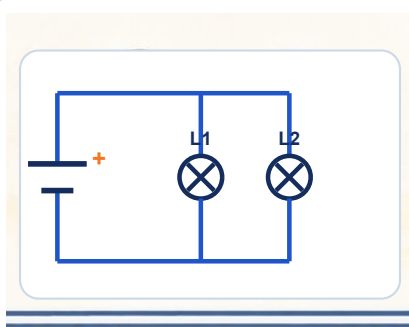
Fio solto

1 lâmpada



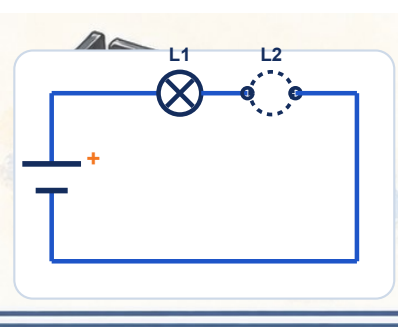
Amostra metálica

teste no intervalo



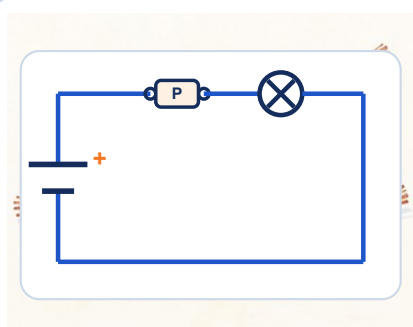
Dois ramos

L1 e L2 presentes



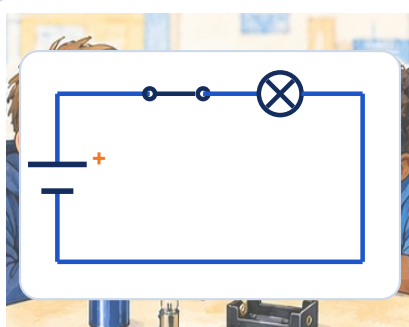
Série com L2 retirada

soquete vazio



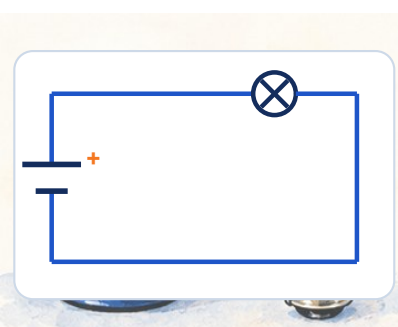
Amostra de plástico

teste no intervalo



Chave fechada

1 lâmpada



Percurso inteiro

1 lâmpada, sem chave

Leia, observe e confira

Recorte nas linhas pontilhadas. Leia o desafio sem mostrar o número da resposta.

CHAMADA 01

LEIA PARA A TURMA

Há um caminho completo da pilha pela lâmpada e de volta. A única lâmpada acende.

Gabarito: Percurso inteiro | acesa

CHAMADA 02

LEIA PARA A TURMA

A chave foi aberta no circuito de uma lâmpada. O caminho se interrompe e ela apaga.

Gabarito: Chave aberta | apagada

CHAMADA 03

LEIA PARA A TURMA

A chave foi fechada no circuito de uma lâmpada. O percurso fica completo e ela acende.

Gabarito: Chave fechada | acesa

CHAMADA 04

LEIA PARA A TURMA

Uma conexão do fio se soltou. Mesmo com pilha e lâmpada, não há caminho completo: ela apaga.

Gabarito: Fio solto | apagada

CHAMADA 05

LEIA PARA A TURMA

A amostra de metal une os dois contatos da lacuna. Nesta montagem, a lâmpada acende.

Gabarito: Amostra metálica | acesa

CHAMADA 06

LEIA PARA A TURMA

A amostra de plástico une fisicamente os contatos, mas isola eletricamente. A lâmpada fica apagada.

Gabarito: Amostra de plástico | apagada

Leia, observe e confira

Recorte nas linhas pontilhadas. Leia o desafio sem mostrar o número da resposta.

CHAMADA 07

LEIA PARA A TURMA

L1 e L2 compartilham um único caminho completo. As duas lâmpadas acendem.

Gabarito: Duas em série | L1 e L2 acesas

CHAMADA 08

LEIA PARA A TURMA

L2 foi retirada da montagem em série. O caminho único se abre e L1 também apaga.

Gabarito: Série com L2 retirada | L1 apagada

CHAMADA 09

LEIA PARA A TURMA

Cada lâmpada está em seu próprio ramo completo. L1 e L2 acendem.

Gabarito: Dois ramos | L1 e L2 acesas

CHAMADA 10

LEIA PARA A TURMA

L2 foi retirada de seu ramo em paralelo. O ramo de L1 segue completo: L1 permanece acesa.

Gabarito: Paralelo sem L2 | L1 acesa

CHAMADA 11

LEIA PARA A TURMA

Só a chave do ramo de L2 está aberta. L1 continua acesa e L2 fica apagada.

Gabarito: Chave no ramo L2 | só L1 acesa

CHAMADA 12

LEIA PARA A TURMA

A chave antes da divisão em ramos está aberta. Nenhum ramo recebe um caminho completo: ambas apagam.

Gabarito: Chave antes dos ramos | L1 e L2 apagadas