

Classroom Partner Logic Puzzle Walkthrough

Confirmed partners are written in **BOLD**.

Students with 3 or less possible partners have their options written in small text.

Luke JACK	Jack	Liam	John	Eli
Ethan	Dan	Nate	Ben	James
Ryan	Noah	Matt	Mike	Leo
Emily	Lily	Lydia	Grace	Leah
Julia	Mia	Lucy	Abi	Zoey
Anna	Carly	Emma	Maya	Nora

Since Jack is Luke's partner, we know that Luke is Jack's partner.

Luke JACK	Jack LUKE	Liam	John	Eli <small>John/Ben/James</small>
Ethan	Dan	Nate	Ben	James
Ryan	Noah	Matt	Mike	Leo
Emily	Lily	Lydia	Grace	Leah
Julia	Mia	Lucy	Abi	Zoey
Anna <small>Julia/Mia/Carly</small>	Carly	Emma	Maya	Nora <small>Maya/Abi/Zoey</small>

Luke's hint: Every student is adjacent to their partner. There are 3 partnerships of one boy and one girl.

Jack's hint: All students in the 4th column are in partnerships of the same gender. Lily's partner is a girl.

The only students that can be in boy-girl partnerships are the students in the 3rd and 4th rows since everyone is adjacent to their partner. Grace and Lily are not working with boys from Jack's hint. Thus, Emily, Lydia, and Leah are working with boys. The only boy that Leah can work with is Leo. Thus Leah and Leo are partners.

Emily and Lydia must work with boys, so they work with Ryan/Noah and Noah/Matt, respectively.

Lily and Grace work with girls, but they must be girls in the 5th row since Emily, Lydia, and Leah are working with boys.

Luke JACK	Jack LUKE	Liam	John	Eli John/Ben/James
Ethan Ryan/Dan/Noah	Dan	Nate	Ben	James
Ryan	Noah	Matt	Mike	Leo LEAH
Emily Ryan/Noah	Lily Julia/Mia/Lucy	Lydia Noah/Matt	Grace Lucy/Abi/Zoey	Leah LEO
Julia	Mia	Lucy	Abi	Zoey
Anna Julia/Mia/Carly	Carly	Emma	Maya	Nora Maya/Abi/Zoey

Leo's hint: There are 3 partnerships made of a 5th and a 6th row student, but none of them are contained in a column.

Leah's hint: Abi's partner is Grace if and only if Noah's partner is Lydia.

From Leo's hint, we know that 3 girls in the 6th row are working with girls in the 5th row. Thus, there is one partnership fully contained in the 5th row, and the girls in that partnership must be adjacent to each other.

Let us start by assuming that the partnership is Anna-Carly. Nora must be working with a 5th row girl not in her column, so Abi-Nora would be a partnership. Similarly, if Carly-Emma or Emma-Maya were partnerships, then Abi-Nora would be a partnership by the same logic. If Maya-Nora is a partnership, then Anna must work with Mia. Emma must either work with Mia or Abi, but since Mia is already working with Anna, Emma works with Abi.

In all possible partnerships in the 6th row, Abi is working with a student in the 6th row. By symmetry, Mia must also be working with a student in the 6th row as well.

Luke JACK	Jack LUKE	Liam	John	Eli John/Ben/James
Ethan Ryan/Dan/Noah	Dan	Nate	Ben	James
Ryan	Noah	Matt	Mike	Leo LEAH
Emily Ryan/Noah	Lily Julia/Mia/Lucy	Lydia Noah/Matt	Grace Lucy/Zoey	Leah LEO
Julia Lily/Carly	Mia Anna/Emma	Lucy	Abi Emma/Nora	Zoey Grace/Maya
Anna Mia/Carly	Carly	Emma	Maya	Nora Abi/Maya

Thus, Grace and Abi cannot be partners, and from Leah's hint, Noah cannot be working with Lydia. Then Matt-Lydia is a partnership.

Luke JACK	Jack LUKE	Liam	John	Eli John/Ben/James
Ethan Ryan/Dan/Noah	Dan	Nate	Ben	James
Ryan	Noah	Matt LYDIA	Mike	Leo LEAH
Emily Ryan/Noah	Lily Julia/Mia/Lucy	Lydia MATT	Grace Lucy/Zoey	Leah LEO
Julia Lily/Carly	Mia Anna/Emma	Lucy	Abi Emma/Nora	Zoey Grace/Maya
Anna Mia/Carly	Carly	Emma	Maya	Nora Abi/Maya

Matt's hint: Only one column does not have a contained partnership.

Lydia's hint: John's partner has 4 letters in his name.

John's partner must be either Liam or Nate from Lydia's hint.

Luke JACK	Jack LUKE	Liam	John Liam/Nate	Eli Ben/James
Ethan Ryan/Dan/Noah	Dan	Nate	Ben	James Eli/Ben/Mike
Ryan	Noah	Matt LYDIA	Mike	Leo LEAH
Emily Ryan/Noah	Lily Julia/Mia/Lucy	Lydia MATT	Grace Lucy/Zoey	Leah LEO
Julia Lily/Carly	Mia Anna/Emma	Lucy	Abi Emma/Nora	Zoey Grace/Maya
Anna Mia/Carly	Carly	Emma	Maya	Nora Abi/Maya

Matt's hint says that one of columns 1, 2, & 4 does not have a contained partnership.

From previous deductions, we know that there can be no column-contained partnerships in rows 4-6 (with the exception of Emily).

This means that the only possible column-contained partnerships in columns 1, 2, & 4 include Ethan-Ryan, Ryan-Emily, Dan-Noah, and Ben-Mike. (John cannot work with Ben)

Let us assume that Ben and Mike are not partners. Thus, Dan and Noah are partners. Since Emily must work with a boy, Emily and Ryan are partners. But Ethan then has no available adjacent partners. Thus, Ben and Mike must be partners.

Luke JACK	Jack LUKE	Liam Dan/Nate/John	John Liam/Nate	Eli James
Ethan Ryan/Dan/Noah	Dan	Nate	Ben MIKE	James Eli
Ryan	Noah	Matt LYDIA	Mike BEN	Leo LEAH
Emily Ryan/Noah	Lily Julia/Mia/Lucy	Lydia MATT	Grace Lucy/Zoey	Leah LEO
Julia Lily/Carly	Mia Anna/Emma	Lucy	Abi Emma/Nora	Zoey Grace/Maya
Anna Mia/Carly	Carly	Emma	Maya	Nora Abi/Maya

By process of elimination, James and Eli are partners.

Luke JACK	Jack LUKE	Liam Dan/Nate/John	John Liam/Nate	Eli JAMES
Ethan Ryan/Dan/Noah	Dan	Nate	Ben MIKE	James ELI
Ryan	Noah	Matt LYDIA	Mike BEN	Leo LEAH
Emily Ryan/Noah	Lily Julia/Mia/Lucy	Lydia MATT	Grace Lucy/Zoey	Leah LEO
Julia Lily/Carly	Mia Anna/Emma	Lucy	Abi Emma/Nora	Zoey Grace/Maya
Anna Mia/Carly	Carly	Emma	Maya	Nora Abi/Maya

James' hint: Maya is partnered with a girl that is not in her row.

Let us again look at rows 5 & 6. From Leo's hint, 3 girls in row 5 work with girls in row 6. We know that 2 of those girls are Mia and Abi. But from James' hint, Maya must work with Lucy or Zoey, meaning that one of Lucy and Zoey works with a girl in row 6. That means that Julia cannot work with a girl in row 6. Thus, Julia works with Lily.

Luke JACK	Jack LUKE	Liam Dan/Nate/John	John Liam/Nate	Eli JAMES
Ethan Ryan/Dan/Noah	Dan	Nate	Ben MIKE	James ELI
Ryan	Noah	Matt LYDIA	Mike BEN	Leo LEAH
Emily Ryan/Noah	Lily JULIA	Lydia MATT	Grace Lucy/Zoey	Leah LEO
Julia LILY	Mia Anna/Emma	Lucy Carly/Grace/Maya	Abi Emma/Nora	Zoey Grace/Maya
Anna Mia/Carly	Carly Anna/Lucy/Emma	Emma Mia/Carly/Abi	Maya Lucy/Zoey	Nora Abi

By process of elimination, Nora works with Abi.

Luke JACK	Jack LUKE	Liam Dan/Nate/John	John Liam/Nate	Eli JAMES
Ethan Ryan/Dan/Noah	Dan	Nate	Ben MIKE	James ELI
Ryan	Noah	Matt LYDIA	Mike BEN	Leo LEAH
Emily Ryan/Noah	Lily JULIA	Lydia MATT	Grace Lucy/Zoey	Leah LEO
Julia LILY	Mia Anna/Emma	Lucy Carly/Grace/Maya	Abi NORA	Zoey Grace/Maya
Anna Mia/Carly	Carly Anna/Lucy/Emma	Emma Mia/Carly	Maya Lucy/Zoey	Nora ABI

Lily's hint: There exist less than 4 partnerships contained in a row.

We already have one row-contained partnership in the first row, and there must be one in the last row.

Let us assume that Liam-John makes up a third row-contained partnership. Then Nate works with Dan or Noah. He cannot work with Dan since this would be a fourth row-contained partnership. If he works with Noah, then Emily must work with Ryan. This leaves Ethan-Dan to be partners, but this again would be the fourth row-contained partnership. Thus, John cannot work with Liam, and he works with Nate.

Luke JACK	Jack LUKE	Liam Dan	John NATE	Eli JAMES
Ethan Ryan/Dan/Noah	Dan	Nate JOHN	Ben MIKE	James ELI
Ryan	Noah	Matt LYDIA	Mike BEN	Leo LEAH
Emily Ryan/Noah	Lily JULIA	Lydia MATT	Grace Lucy/Zoey	Leah LEO
Julia LILY	Mia Anna/Emma	Lucy Grace/Maya	Abi NORA	Zoey Grace/Maya
Anna Mia/Carly	Carly Anna/Lucy/Emma	Emma Mia/Carly	Maya Lucy/Zoey	Nora ABI

By process of elimination, Liam works with Dan.

This means that Column 2 is the column without a contained partnership, so Ethan-Ryan or Emily-Ryan are partnerships.

Luke JACK	Jack LUKE	Liam DAN	John NATE	Eli JAMES
Ethan Ryan/Noah	Dan LIAM	Nate JOHN	Ben MIKE	James ELI
Ryan Ethan/Emily	Noah Ethan/Emily	Matt LYDIA	Mike BEN	Leo LEAH
Emily Ryan/Noah	Lily JULIA	Lydia MATT	Grace Lucy/Zoey	Leah LEO
Julia LILY	Mia Anna/Emma	Lucy Carly/Grace/Maya	Abi NORA	Zoey Grace/Maya
Anna Mia/Carly	Carly Anna/Lucy/Emma	Emma Mia/Carly	Maya Lucy/Zoey	Nora ABI

Nate's hint: Only one student adjacent to Julia is in a partnership contained in a row or column.

The only possible partnerships in the 6th row left are Anna-Carly and Carly-Emma. If Anna-Carly was a partnership, then two students adjacent to Julia would be in a row-contained partnership. Thus, Carly-Emma is a partnership.

Luke JACK	Jack LUKE	Liam DAN	John NATE	Eli JAMES
Ethan Ryan/Noah	Dan LIAM	Nate JOHN	Ben MIKE	James ELI
Ryan Ethan/Emily	Noah Ethan/Emily	Matt LYDIA	Mike BEN	Leo LEAH
Emily Ryan/Noah	Lily JULIA	Lydia MATT	Grace Lucy/Zoey	Leah LEO
Julia LILY	Mia Anna	Lucy Grace/Maya	Abi NORA	Zoey Grace/Maya
Anna Mia	Carly EMMA	Emma CARLY	Maya Lucy/Zoey	Nora ABI

By process of elimination, Anna and Mia are partners.

Luke JACK	Jack LUKE	Liam DAN	John NATE	Eli JAMES
Ethan Ryan/Noah	Dan LIAM	Nate JOHN	Ben MIKE	James ELI
Ryan Ethan/Emily	Noah Ethan/Emily	Matt LYDIA	Mike BEN	Leo LEAH
Emily Ryan/Noah	Lily JULIA	Lydia MATT	Grace Lucy/Zoey	Leah LEO
Julia LILY	Mia ANNA	Lucy Grace/Maya	Abi NORA	Zoey Grace/Maya
Anna MIA	Carly EMMA	Emma CARLY	Maya Lucy/Zoey	Nora ABI

Emma's hint: Grace's partner is not Zoey. This means that Gracy-Lucy and Zoey-Maya are partnerships.

Luke JACK	Jack LUKE	Liam DAN	John NATE	Eli JAMES
Ethan Ryan/Noah	Dan LIAM	Nate JOHN	Ben MIKE	James ELI
Ryan Ethan/Emily	Noah Ethan/Emily	Matt LYDIA	Mike BEN	Leo LEAH
Emily Ryan/Noah	Lily JULIA	Lydia MATT	Grace LUCY	Leah LEO
Julia LILY	Mia ANNA	Lucy GRACE	Abi NORA	Zoey MAYA
Anna MIA	Carly EMMA	Emma CARLY	Maya ZOEY	Nora ABI

From Nate's hint, Emily cannot be in a column-contained partnership since Carly is in a row-contained partnership. Thus, Ethan-Ryan and Noah-Emily are partnerships.

FINAL SOLUTION

Luke JACK	Jack LUKE	Liam DAN	John NATE	Eli JAMES
Ethan RYAN	Dan LIAM	Nate JOHN	Ben MIKE	James ELI
Ryan ETHAN	Noah EMILY	Matt LYDIA	Mike BEN	Leo LEAH
Emily NOAH	Lily JULIA	Lydia MATT	Grace LUCY	Leah LEO
Julia LILY	Mia ANNA	Lucy GRACE	Abi NORA	Zoey MAYA
Anna MIA	Carly EMMA	Emma CARLY	Maya ZOEY	Nora ABI

